TEXTILE TECHNOLOGY DIGEST

VOLUME 17 JANUARY 1960 NUMBER 1

ABSTRACTS

FIBERS A

EFFECT OF WEATHERING ON THE STABILITY OF SYNTHETIC POLYAMIDE FIBERS (KAPRON), WOOL, AND SILK. D. N. Griboedov, V. F. Androsov, and E. R. Zirule. Tekhnol. Tekstil. Prom. No. 3 (10): 112-120 (1959). In Russian. Through BCIRA 39: 3924 (1959). (1)

Conditions are discussed where samples of undyed wool, natural silk, and Kapron fibers are subject to maximum tendering by light and weather. A protection to sunlight is obtained by dyeing Kapron fibers with selected acid or acetate dyes. Steam setting of Kapron fibers reduces its sensitivity to the action of light and weather. Delustered dyed fiber is more sensitive to the action of light than lustrous.

MIGRATION OF LIQUIDS IN TEXTILE ASSEMBLIES. PART 3. BEHAVIOR OF LIQUIDS ON SINGLE TEXTILE FIBERS. F. W. Minor and A. M. Schwartz (Harris Research Labs.), E. A. Wulkow and L. C. Buckles (Army Chem. Center). Textile Research J. 29: 940-949 (Dec. 1959). (2)

This paper describes the observed behavior of several representative organic liquids on various textile fibers and discusses this behavior in terms of capillary theory. Methods for measuring the contact angle and contact angle hysteresis of liquids against single fibers are also described. Photomicrographs, diagrs, tables, 4 refs.

DYNAMIC MECHANICAL PROPERTIES OF HIGH POLYMERS AND THE IMPORTANCE OF THEIR STUDY. J. Prakash (Indian Central Cotton Comm., Bombay). J. Sci. Ind. Research (India) 18A: 404-413 (Sept. 1959). (3)

The importance of the study of the dynamic mechanical properties of high polymers, with special reference to textiles, has been emphasized, and the various methods employed in the determination of these properties summarized and their limitations pointed out. Graphs, 26 refs.

Natural fibers A1

PLASTICITY OF WOOL. PART 4. EFFECT OF VARIATIONS IN NUTRITION. K. J. Whiteley and J. B. Speakman (Leeds Univ.). Textile Research J. 29: 1010-1011 (Dec. 1959). (4)

The plasticity of wool increases, and the difference of plasticity between fibers from primary and secondary follicles is accentuated, as the level of nutrition of the sheep decreases. Tables, 2 refs.

SWELLING BEHAVIOR OF JUTE IN WATER AND ALKALI SOLUTION. S. C. Roy and M. K. Sen (Indian Jute Mills Assoc. Research Inst.). J. Textile Inst. 50: T640-T648 (Nov. 1959). (5)

The results of measurement of transverse and longitudinal swelling of jute in water and those of absorption of water and alkali from caustic soda solutions are described. The very low value of the longitudinal swelling of jute is taken to indicate a restrained swelling for the structural elements of the fiber. Both delignification and treatment with mild alkali encourage swelling to a certain extent; but while the former affects uniformly the longitudinal and the transverse swelling, the effect of the latter is preferential in the longitudinal direction on account of the accompanying disorientation. Compared with cotton, jute is characterized by high values of absorption and swelling in dilute alkali, low values in strong alkali, and the attainment of the maximum swelling at a lower concentration. This can be explained by picturing jute as a cellulosic framework with small and/or imperfect crystals, associated with hemicelluloses and lignin which may form cross-linkages also with cellulose. The results further suggest that the incomplete mercerization of jute has its precursor in the subdued swelling. Diagr, graphs, 21 refs.

EFFECT OF THE SORPTION PROCESS ON THE DYNAMIC RIGIDITY MODULUS OF THE WOOL FIBER. B. H. Mackay and J. G. Downes (Wool Textile Research Labs., CSIRO). J. Appl. Polymer Sci. 2: 32-38 (July/Aug. 1959). (6)

Using a torsion pendulum, measurements have been made of the dynamic modulus of rigidity of wool fibers during the process of sorbing or desorbing water (from the vapor phase). Anomalous behavior is observed, with low values of rigidity which cannot be accounted for in terms of equilibrium data. It appears that transient stresses occurring during sorption and desorption cause a temporary lowering of the rigidity modulus. Graphs, 9 refs.

CHANGE IN STRESS ON WETTING AND DRYING WOOL FIBERS. M. Feughelman (C. S. I. R. O. Wool Research Labs.). Textile Research J. 29: 967-970 (Dec. 1959). (7)

When a wet wool fiber is strained to a fixed extension, allowed to remain at this extension for a time, and then dried, the stress in the fiber rises. This rise of stress is independent of the time as long as it is greater than about 1 min, and is also independent of a number of chemical and physical modifications to various fibers. The rise in stress is dependent on the strain and increases to a maximum value at about 30% strain. Between 30% and 50% strain no further increase was recorded. From the evidence presented, it is suggested that drying the fiber in a strained state introduces strained hydrogen bonds, which are responsible for the stress rise on drying. Diagr, graphs, tables, 13 refs.

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SOME EFFECTS OF SHEEP NUTRITION ON THE MECHANICAL CONSTANTS OF WOOL. V. D. Burgmann (C.S.I.R.O. Wool Research Labs.). Textile Research J. 29: 901-906 (Nov. 1959). (8)

Results are reported of measurements on the mechanical constants of wool from sheep under closely controlled conditions of husbandry and nutrition. The experimental wool had a change of diameter along individual fibers which was due to a deliberate variation in food intake of the sheep during the growing period. Values for the yield region are given for a Merino and a Corriedale wool. The Merino showed no change due to diameter variation and the Corriedale only a slight change. Diagrs, graphs, table, 24 refs.

STRESS RELAXATION AND THE TRANSITION TEMPERATURE OF WOOL. B. J. Rigby (C.S.I.R.O. Wool Research Labs.). Textile Research J. 29: 926-929 (Nov. 1959). (9)

The stress-relaxation behavior of a number of chemically and physically modified wool fibers has been examined and shown to correlate with the temperature of transition of the particular modified wool. The transition temperature has been discussed previously by Feughelman, Haly, and Rigby. Below the transition temperature the stress decays in 1 hr by 33%, and above the transition temperature by 73%, of its initial value. These quantities are independent of the particular modification and appear to be associated with reversible and nonreversible transformations of native keratin. Graphs, table, 7 refs.

SPONTANEOUS IGNITION OF WOOL. PART 2. A NEW PROCESS FOR WOOL REMOVAL FROM SHEEPSKIN PIECES. M. S. Carrie, I. K. Walker, and W. J. Harrison. J. Appl. Chem. 9: 608-615 (Nov. 1959). (10)

A new process has been developed for the removal of wool from sheepskin pieces, which has considerable advantages over the pie process. The wool is slightly loosened and the skin toughened by immersion in hot water for a few minutes, and a specially designed roller strips the wool from the skin. A commercial machine using this principle has been designed, and 7 years' commercial experience of the process has been obtained. Nearly 200 samples of wool have been examined from machines operated under commercial conditions, using adequate safeguards against undue contamination of the wool with fat or with iron. It has been shown that the wool produced under these conditions is free from hazards of spontaneous ignition in commerce. A simple method has been demonstrated for predicting the commercial hazards of spontaneous ignition, by calculating the temperature distribution to be expected through bales of self-heated wool from the results of smaller-scale experiments. For part 1 see abstr. 2415/57. Graphs, tables, 30 refs.

DISTRIBUTION OF THE DEGREE OF POLYMERIZATION OF FIBER CELLULOSE ALONG THE STEM OF JUTE PLANT. H. Chatterjee and A. K. Mazumdar (Indian Central Jute Comm.). (Letter to the editor). J. Sci. Ind. Research (India) 18C: 207-208 (Oct. 1959). (11)

SOUTH TEXAS COTTON. Textile World 109: 48 (Dec. 1959). (12)

USDA fiber and spinning tests on early- and mid-season cotton show that in comparison with the 5-year average break factor is up, micronaire value is higher, and yarn appearance is off.

VISCOMETRIC EVALUATION OF THE QUALITY OF JUTE CELLULOSE. H. Chatterjee and A. K. Mazumdar (Indian Central Jute Comm.). (Letter to the editor). J. Sci. Ind. Research (India) 18B: 395-397 (Sept. 1959). (13)

CHEMICAL CHARACTERS OF JUTE FIBER AT DIFFERENT STAGES OF PLANT GROWTH. H. Chatterjee (Indian Central Jute Comm.). (Letter to the editor). J. Sci. Ind. Research (India) 18C: 206-207 (Oct. 1959). (14)

Manmade fibers A2

NEW NITROGEN-CONTAINING CELLULOSE ESTERS FROM CELLULOSE ACETATE SUCCINAMATES. J. E. Kiefer, G. P. Touey, and J. R. Caldwell (Tenn. Eastman Co.). Ind. Eng. Chem. 51: 1481-1482 (Dec. 1959). (15)

The behavior of succinamic acid derivatives is unique and may lead to a new synthetic yarn that can be dyed with acid wool dyes. Tables, 8 refs.

THE PROPERTIES OF ACRILAN 16. Chemstrand Corp., Decatur, Ala. Nov. 1959. 6 p. Bull. AP-14. (16)

GUIDE TO FIBERS AND FILAMENTS: 1959. Skinner's Silk & Rayon Record 33: 1060-1071 (Nov. 1959). (17)

This survey of the various manmade fibers and filaments now being used in Britain lists, under each fiber, producer, trade name, type, denier, and staple length. Reprints may be obtained from Skinner's Silk & Rayon Record, 44 Brazennose St., Manchester 2, England for 2s per copy.

WHAT ARE POLYNOSICS? Skinner's Silk & Rayon Record 33: 1084-1085 (Nov. 1959). (18)

One of the most striking characteristics of the polynosic fiber is the uniformity of its fundamental structure. The molecular arrangement has been made homogenous; the fibrils are extremely fine and regular. Apart from this, the fundamental structure of the polynosic fiber is similar to that of natural cellulosic fibers, and it has 100% cellulose content. The fiber and fabric characteristics of Fiber Z-54 are noted. Photomicrographs.

STUDIES ON THE FINE STRUCTURE OF NYLON 6 FIBERS BY MEASURING THE AMOUNT OF PHENOL ABSORBED. PART 1. MEASUREMENT METHOD OF THE AMOUNT OF PHENOL ABSORBED BY NYLON 6 FIBERS. PART 2. SWELLING OF NYLON 6 FIBERS IN AQUEOUS PHENOL SOLUTION AND THE PHENOL ABSORBED BY NYLON 6 FIBERS. PART 3. ESTIMATION METHOD OF THE LATERAL ORDER DISTRIBUTION IN NYLON 6 FIBERS BY MEASURING THE AMOUNT OF PHENOL ABSORBED. H. Kanetsuna. Bull. Textile Research Inst. (Japan) No. 49: 65-82 (1959). In Japanese (English summary). Summary in BCIRA 39: 3921 (1959). (19)

IMPROVED METHOD OF BONDING FABRICS OF TEFLON TFE-FLUOROCARBON FIBER. E. I. du Pont de Nemours & Co., Textile Fibers Dept., Wilmington, Del. May 1958. 1 p. Bull. T-4. Free. (20)

The application of napping (or sanding) treatments to improve adhesion.

SHIPPING INFORMATION: TEFLON TFE-FLUOROCARBON FIBER. E. I. du Pont de Nemours & Co., Textile Fibers Dept., Wilmington, Del. Oct. 1958. 3 p. Bull. T-5 (replaces Bull. T-1). Free. (21)

TEFLON TFE-FLUOROCARBON FIBER: PROPERTIES OF FIBER AND FABRICS. E. I. du Pont de Nemours & Co., Textile Fibers Dept., Wilmington, Del. Dec. 1958. 13 p. Bull. T-6 (replaces Bull. T-2 and T-3). Free. (22)

STUDY ON THE CREEP OF TERYLENE. PART 1. DEPENDENCY ON THE VARIOUS LOADS FOR CREEP AND RECOVERY BEHAVIORS. K. Shirakashi, K. Ishikawa, and I. Kuriyama. J. Soc. Textile Cellulose Inds. Japan 15, No. 8: 641-646 (1959). In Japanese (English summary). Through BCIRA 39: 4095 (1959). (23)

First creep and recovery behavior of commercial filament in a long duration test for 24 hr was studied under various loads at 20° C and 54% rh, and a second creep and recovery test was made under the same conditions. The results are described and considered theoretically.

PROPERTIES AND ECONOMICS OF VINYLON FIBERS. Man-Made Textiles 36: 54-56 (Nov. 1959). (24)

The manufacture of Vinylon is described, and its physical, chemical, and fabric properties are compared with those of other fibers. Graphs, tables.

VINAL. PART 1. WHAT IT IS; WHAT IT CAN DO. R. D. Wells (Fabric Research Labs.). Modern Textiles Mag. 40: 51-55 (Nov. 1959). (25)

The term vinal is used in its generic sense to cover fibers containing at least 50% by weight of vinyl alcohol units and at least 85% in total of alcohol and acetal units. It encompasses a variety of fiber sub-types and modifications, derived from several spinning and hardening processes. The characteristics of vinal 5F, a wet-spun acetylated type of vinal, and vinal FO filament vinals are discussed in the articles. Graphs, tables.

VINAL. PART 2. PROCESSING AND END USES. W. H. Hindle (Air Reduction Chem. Co.). Modern Textiles Mag. 40: 55-58 (Nov. 1959). (26)

The wet processing, dyeing, and finishing of vinal fibers and their use in sewing thread, tire cords, knitwear, upholstery fabrics, nonwovens, and paper is briefly discussed.

DAMAGE BY RADIATION IN POLYVINYL CHLORIDE FIBER. T. Muroi, S. Onisi, S. Morimoto, and A. Yamanti. Bull. Textile Research Inst. (Japan) No. 49: 27-30 (1959). In Japanese (English summary). Through BCIRA 39: 3925 (1959). (27)

Changes in physical properties, and the effect of presence of air, were studied.

LYCRA SPANDEX FIBER: PROPERTIES AND PROCESSING OF YARNS AND FABRICS. E. I. du Pont de Nemours & Co., Textile Fibers Dept., Wilmington, Del. Oct. 1959. 17 p. Bull. NP-10 (replaces Bull. NP-3). Free. (28)

DYNAMIC CHANGES IN VISCOSE FIBERS. C. E. Coke. Silk Rayon Inds. India 2: 15-22 (Sept. 1959). (29)

A review. 30 refs.

YARN PRODUCTION B

RAW MATERIALS AND BLENDING FOR THE WOOLEN AND COTTON CONDENSER SYSTEMS. J. Smithies (Courtaulds Ltd). J. Textile Inst. 50: P598-P609 (Oct. 1959). (30)

The blending of manmade fibers of interest from the viewpoint of the woolen and cotton condenser systems are considered under the following headings: natural polymers (regenerated viscose, cellulose ethers, regenerated proteins) and synthetic polymers (polyamides, polyesters, vinyl derivatives). Photomicrographs, tables, 14 refs.

FLAX SPINNING ECONOMICS: FACTORS FOR REDUCING THE WASTE PERCENTAGE. S. A. G. Caldwell. Textile Mfr. 85: 453-455 (Oct. 1959). (31)

Factors affecting waste loss in flax hackling, carding, combing, and spinning are pointed out, and techniques for reducing the losses are described. Diagrs.

PROCESSING ORLON TOW ON TURBO STAPLER. J. E. Norton, R. S. Smith, and A. T. Twing, Jr. (E. I. du Pont de Nemours & Co.). Modern Textiles Mag. 40: 40-42, 58 (Nov. 1959). (32)

Opening, picking, fiber preparation B1

MULTI-CYLINDER OPENER FOR COTTON. Trützschler & Co. Textile Recorder 77: 75-76 (Dec. 1959). (33)

The Multi-Point opener incorporates a series of large diameter saw toothed rollers operating in parallel at relatively slow speeds and low rates of production, to reduce the material virtually to the single fiber state in a single passage through the machine. The machine normally has four cylinders operating in four identical cleaning units. Its construction and operation are explained. Photo, diagr.

NEW METHOD OF OPENING COTTON. V. V. Kokorin. Tekhnol. Tekstil. Prom. No. 3 (10): 76-80 (1959). In Russian. Through BCIRA 39: 3823 (1959). (34)

A new improved method and machine for the opening of cotton are described. The intense opening during the first stages of processing makes it possible to eliminate to a greater extent the impurities, especially from low cotton qualities.

FIBER METER BLENDING SYSTEM. W. F. Leineweber, Jr. (James Hunter, Inc.). Am. Textile Reptr. 73: 26-29, 39 (Nov. 12, 1959). (35)

The fiber meter automatic blending system dependably and consistently gives a blending accuracy of ± 1%, regardless of the percentages used in the components of the mix. The basic machine in the fiber meter system is the fiber meter automatic weighing feeder. A typical system is composed of 6 fiber meters, a horizontal belt blending conveyor, and an inclined opener-blender. Its operation and efficiency are described. Diagrs.

USE OF A VERTICAL OPENER IN THE PLANT FOR FINE-FIBERED COTTON. B. V. Kostin. Tekstil. Prom. No. 2: 31-33 (1959). In Russian. Through BCIRA 39: 4036 (1959). (36)

Carding and combing B2

MAKING YARNS FOR HOMESPUNS. W. J. Crofts. Textile Inds. 123: 94-99 (Dec. 1959). (37)

Novelty yarns for homespuns, such as slub, flake, and splash yarns may be made by using a flake yarn attachment for woolen cards. The preparation of the card for blended nubs is described in detail. Photos, diagrs.

MOVEMENT OF FIBERS IN A FLAT CARD. K. Ueda, Y. Ogoshi, and K. Shirai. J. Textile Machy. Soc. Japan 12, No. 7: 3-9 (1959). In Japanese (English summary). Through BCIRA 39: 3826 (1959). (38)

The rate of movement of fibers (rayon staple) from cylinder to doffer and the quantity of fiber on the cylinder have been investigated, with ordinary and metallic card clothing, to determine the proper distribution of fibers on the cylinder and increase production on a metallic card.

PROCESSING OF SYNTHETIC FIBERS ON COTTON FLAT CARDS. H. Ott. Textil-Praxis (English ed.) No. 3: 97-102 (Sept. 1959). (39)

Experiments on Trevira fibers (1.2 den/40) showed that satisfactory carding can be effected on cotton flat cards with normal wire clothing by installing a fancy roller. A detailed description is given of such a roller (Württembergische Textilmaschinenbau GmbH) and of the manner in which it is mounted and may be removed when changing over to corron or (rayon) staple fiber processing.

USE OF METALLIC CARD CLOTHING FOR COTTON PROCESSING. PART 4. EFFECTS OF FLAT AND DOFFER SETTINGS. C. Nozaki, Y. Mineo, K. Ando, and H. Kimura. J. Textile Machy. Soc. Japan 12, No. 7: 10-17 (1959). In Japanese (English summary). Through BCIRA 39: 3825 (1959). (40)

The effects of different settings, at 3 doffer speeds, with several combinations of metallic wire angles on flat strips, impurities, and staple lengths, was examined by feeding cotton laps for 20s yarn. Smaller settings are recommended, but a smaller doffer setting is not always the best for a smaller tooth angle of metallic wire on the doffer.

EFFECTIVENESS OF COMBER LAP PREPARATION BY MEANS OF FOUR MACHINE PASSAGES. A. P. Rakov. Tekhnol. Tekstil. Prom. No. 3 (10): 68-75 (1959). In Russian. Through BCIRA 39: 3827 (1959). (41)

Improvement of yarn quality by means of a new spinning plan is discussed. Irregularity of yarn and waste on carding machines are considerably reduced and the productivity of the machines and the quality of the noils and sliver are improved. It is concluded that the application of the new system of lap preparation (3 drawframe passages and 1 passage through a sliver-lap machine) leads, for thin fibered cotton, to satisfactory results.

EXTENDING THE STRIPPING CYCLE. W. Nutter and A. Cross. Textile Recorder 77: 58-60 (Dec. 1959). (42)

The results obtained from the mill trials reported indicate that with standard card wire the normal period between strippings may be multiplied by a factor of up to five without incurring any loss in quality. Photos, graphs.

Drawing and roving B3

IRREGULARITIES IN ROVING AND THEIR THEORETICAL LIMITS. S. Gruoner. Textil-Praxis (English ed.) No. 3: 103-107 (Sept. 1959). (43)

Graphs, table.

REGULATING SYSTEMS FOR SLIVER EQUALIZATION. PART 8. CONSTRUCTION OF CONTROL ORGANS: THEIR MOST IMPORTANT CHARACTERISTICS AND PROPERTIES. W. Wegener and H. Bechlenberg. Textil-Praxis 14, No. 8: 774-779 (1959). In German. Through BCIRA 39: 3828 (1959). (44)

In this section of comprehensive series dealing with control systems for producing uniform slivers the measuring value converter is described, which makes it possible to convert the geometrical values, and to amplify them into electrical values, and which directly activates the control systems. Various designs of the control system are described and illustrated; they may also be used in conjunction with various mechanical sliver controlling methods and devices. (For previous parts see abstr. 2307/59, 2917/59, 4079/59, and 4080/59).

METHOD OF STUDYING IRREGULARITY FROM DRAWING BY MEANS OF RADIOACTIVE ISOTOPES. V. A. Protasov. Tekhnol. Tekstil. Prom. No. 3 (10): 88-95 (1959). In Russian. Through BCIRA 39: 3831 (1959). (45)

P^{32} has been used as radioactive isotope to measure the velocity of fiber movement in the drawframe and to study the degree of parallelization and orientation of the fibers. The activity of control fibers was measured.

TECHNOLOGY OF THE COTTON DRAWING SYSTEM. PART 2. L. A. B. Gangli. Textil-Praxis 14, No. 8: 787-790 (1959). In German. Through BCIRA 39: 3830 (1959). (46)

The author gives details of the influence of fiber tension in the drawing system. In addition, he shows how fiber adhesion in the draft field affects the floating fibers, and discusses the significance of fiber crimp. Various modern high-draft drawing systems (in which roving and sliver, respectively, are processed) are briefly reviewed. (For previous part see abstr. 4081/59).

HIGH DRAFT CONTINENTAL DRAWING FRAME. N. Schlumberger & Cie. Textile Recorder 77: 77, 79 (Dec. 1959). (47)

The Schlumberger FM apron high draft worsted drawing frame for the production of twistless rovings is fitted with rubbing aprons and is normally used as a fourth operation machine to produce a roving of suitable weight for the spinning frame in a short processing set incorporating a series of high speed intersecting gill boxes as the earlier machines. Its features and productivity are covered. Photos, diagr.

AUTOMATIC REGULATION OF THE CARD SLIVER WEIGHT ON THE DRAWING FRAME. G. O. Lezhebrukh and N. I. Chuykova. Tekstil. Prom. No. 2: 25-31 (1959). In Russian. Through BCIRA 39: 4045 (1959). (48)

Spinning, winding, twisting B4

SERVICE LIFE OF THE TRAVELER. F. Walz. Textil-Praxis 14, No. 8: 771-773 (1959). In German. Through BCIRA 39: 3835 (1959). (49)

The author deals with a paper by Grishin in Whitin Review, with special reference to the section dealing with the service life of travelers on spinning machines. A characteristic number is established on the basis of which the time after which a traveler should be replaced can be read off a straight-line chart.

SLIVER SPINNING. N. Hooper (Tweedales & Smalley Ltd). Textile Weekly 59(2): 824-825, 830 (Oct. 16, 1959). (50)

The importance of proper sliver preparation in sliver to yarn processing is discussed, and features of the Tweedales and Smalley AKP12 drawing frame, specially developed for producing cross-wound packages for creeling at the sliver spinning frame, are described. Photos.

STUDY OF THE CONTINUOUS SPINNING MACHINES IN CONDENSER SPINNING. J. Kinapenne. Rev. Textilis 15, No. 7/8: 13-20 (1959). In French. Through BCIRA 39: 4005 (1959). (51)

A general productivity formula (in kg/hr) is proposed, taking into account the delivery speed of the yarn (in m/min), the number of spindles, the metric count to be spun, and the yield coefficient of the machine.

INCREASE OF PACKAGE SIZE ON P-76 SPINNING FRAME. A. N. Vanchikov, L. I. Gorina, and M. I. Borisova. Tekstil. Prom. No. 2: 14-19 (1959). In Russian. Through BCIRA 39: 4049 (1959). (52)

PROBLEMS IN THE DESIGNING OF THE ALD [ABBOTT LINE DRAFT] RING SPINNING FRAME. T. Kawabata and K. Uezeki. J. Textile Machy. Soc. Japan 12, No. 8: 34-43 (1959). In Japanese (English summary). Through BCIRA 39: 4047 (1959). (53)

In this new drafting system, instead of an apron, 4 stainless-steel slide-pieces are joined together, and they feed and control the roving by moving backwards and forwards periodically and alternately. Research on the mechanism and its application to ring spinning or flyer frames is described.

DRAFTING CHARACTERISTICS OF THE ABBOTT LINE DRAFT ON RING SPINNING FRAMES. S. Kawashima. J. Textile Machy. Soc. Japan 12, No. 8: 42-47 (1959). In Japanese (English summary). Through BCIRA 39: 4048 (1959). (54)

The system can be handled easily, with reduced yarn breakage, if evenly twisted roving is used. In cotton spinning the room should be humidified above 60% rh. The drafting range can be increased up to 30 for cotton and 40-50 for rayon staple and synthetic fibers. For some yarns and fibers no change in roller gage is necessary, but it is desirable to adjust the cam roller speed and the spring pressure.

SPINNING DIRECT FROM DRAWFRAME SLIVER. Tweedales & Smalley Ltd. Textile Recorder 77: 103-107 (Nov. 1959). (55)

The Tweedales and Smalley sliver spinning system is based on two machines, the AKP12 drawing frame which operates at a speed of 120 to 150 ft/min and the RFN (narrow) or RFW (wide) sliver ring spinning frame. Details of the machines are given. Photos.

RUBBER COVERINGS [ROLLERS] AND APRONS FOR DRAFTING SYSTEMS OF SPINNING MACHINES. I. N. Bukhtanov. Tekstil. Prom. No. 2: 20-24 (1959). In Russian. Through BCIRA 39: 4046 (1959). (56)

NEW COTTON YARN TWISTING SYSTEM USING TWO-FOR-ONE TWISTING SPINDLES. M. Michelitsch. Melliand 40, No. 4: 232-236 (1959). (57)

This survey of present developments in twisting techniques in the manufacture of 2-ply yarns compares ring twisting and 2-for-1 techniques. Photo, diagrs.

Yarns B5

NEW AGILON: AGILON D. A. Ridehalgh (Brit. Nylon Spinners). Nylon Outlook 2, No. 6: 10-17 (Summer 1959). (58)

In designing a modified Agilon with the stitch clarity required in knitwear, the problem was to design from a basic edge-crimped yarn a yarn giving restricted movement in fabric form and having substantially the same amount of bulk in the finally developed fabric as has normal Agilon. This is achieved in Agilon D by developing part of the bulk in yarn form, thus leaving only a relatively small portion of the overall bulk to be developed in the fabric. Consequently, during finishing there is very little filament movement with its attendant loss in stitch clarity. Agilon D also has a low crimp extensibility by crimped yarn standards. Its manufacture is described. Photos, photomicrographs, tables.

TWIST SHRINKAGE OF NYLON YARN. M. Yoshida and H. Kitagawa. J. Textile Machy. Soc. Japan 12, No. 8: 17-20 (1959). In Japanese (English summary). Through BCIRA 39: 4099 (1959). (59)

The twist shrinkage increases in proportion to the square of the twist and the denier; it decreases with an increase in load and twist. For a higher percentage of relative humidity, it increases when the load is zero since the longitudinal swelling of nylon is far smaller than the lateral swelling; but when the load increases, it decreases with an increase in extension by the adsorption of moisture. Twist has no effect on the neutral diameter but an increase in load reduces it; the smaller the twist the larger the effect, and this tendency is heightened by a high relative humidity.

EFFECTS OF THE RATIO OF VARIOUS SILK FIBER COMPONENTS IN A MIXTURE ON THE PHYSICO-MECHANICAL PROPERTIES OF YARN. V. A. Ussenko and Li-Chen-Szen. Tekhnol. Tekstil. Prom. No. 3 (10): 60-67 (1959). In Russian. Through BCIRA 39: 3940 (1959). (60)

The physicomechanical properties of silk fiber blends in dependence of the proportion of each component (staple length) are discussed. Equations are given to facilitate the choice of the components and of their proportion in the blend for the production of yarn with the desired breaking length.

VISCOELASTIC BEHAVIOR OF NYLON 6 YARN DURING HEATING. I. Tsujimoto and N. Motoji. J. Textile Machy. Soc. Japan 12, No. 7: 28-32 (1959). In Japanese (English summary). Through BCIRA 39: 3939 (1959). (61)

The mechanical properties in the region of a comparatively small strain at various temperatures can be represented by a dynamic model; they show abnormality at 60° C and 140-160° C.

TENSION OF VISCOSE AND NYLON YARN IN THE RUNNING STATE. PART 2. M. Maeda and T. Yamaguchi. J. Textile Machy. Soc. Japan 12, No. 7: 33-45 (1959). In Japanese (English summary). Through BCIRA 39: 3938 (1959). (62)

The effects of draft, amplitude of elongation, and running speed on yarn tension when periodic elongations are imposed were studied.

BEHAVIOR OF TEXTILE YARNS DURING SHRINKAGE. V. Bobeth. Tekhnol. Tekstil. Prom. No. 3 (10): 33-44 (1959). In Russian. Through BCIRA 39: 3937 (1959). (63)

Results obtained during a study of the shrinkage of various yarns are described, with special reference to the laboratory apparatus used for measuring the dimensional changes occurring in the samples as a function of the load applied. Practical examples are given to show that there is a direct relationship between the degree of draft in manmade fibers (their orientation) and changes in their length. Natural and manmade protein fibers show a particularly high dimensional stability, whereas polyester fibers are stable at low and medium loads but, after relaxation, they do not exhibit the same degree of elasticity as do polyamides or wool. The apparatus described also measures the Poisson coefficient and the true yarn tension. For Perlon, the Poisson coefficient was found to be 0.4.

ELONGATION AS A FUNCTION OF TWIST OF CONTINUOUS-FILAMENT YARN. W. Zurek. Reply: J. W. S. Hearle. (Letters to the editor). J. Textile Inst. 50: T649-T652 (Nov. 1959). (64)

TWO NEW SNAP-BACK FILAMENTS. Modern Textiles Mag. 40: 38, 40 (Dec. 1959). (65)

Lycra (du Pont Co.) and Vyrene (U.S. Rubber Co.) elastomeric yarns fall into the category of "spandex" fibers as defined by the Federal Trade Commission, e.g. "a manufactured fiber in which the fiber-forming substance is a long chain synthetic polymer comprised of at least 85% of a segmented polyurethane." Their physical and chemical properties are noted.

NYLON ROPES. R. R. Atkinson (Brit. Nylon Spinners). Nylon Outlook 2, No. 6: 36-46 (Summer 1959). (66)

This article gives an account of a development program on ropes to examine the factors involved in making the best possible use of nylon yarn for rope making. It shows by means of simple yarn geometry how the strength of twisted structures is influenced by twist and the manner in which the constituents are assembled. Photos, diagrs, graphs, tables.

ADAPTING CREELS TO LARGER BOBBINS OF DU PONT NYLON. E. I. du Pont de Nemours & Co., Textile Fibers Dept., Wilmington, Del. Oct. 1959. 2 p. Bull. N-119. Free. (67)

BETTER GEARS. L. H. Morrison (Medley Mach. Co.). Textile Bull. 85: 48-49 (Dec. 1959). (68)

Gear-caused yarn patterns and problems can be eliminated and money can be saved by: (1) better-made gears from selected materials; (2) gears mounted on accurate hardened and ground studs; (3) gears located at right angles to the gear mounting bracket; and (4) observance of good maintenance practices.

MIGRATION OF LIQUIDS IN TEXTILE ASSEMBLIES. PART 2. WICKING OF LIQUIDS IN YARNS. F. W. Minor and A. M. Schwartz (Harris Research Labs.), E. A. Wulkow and L. C. Buckles (Army Chem. Center). Textile Research J. 29: 931-939 (Dec. 1959). (69)

The purpose of these investigations was to study experimentally the wicking behavior of a series of inert, nonvolatile organic liquids in typical yarns, paying particular attention to the effects of viscosity and surface tension of the liquid, contact angle relationships, and geometry of both the yarn and the yarn/liquid system. Diagrs, graphs, tables, 3 refs.

CORD STRESSES IN INFLATED TIRES. H. G. Lauterbach and W. F. Ames (E. I. du Pont de Nemours & Co.). Textile Research J. 29: 890-900 (Nov. 1959). (70)

In order to calculate the stresses in the cords of an inflated tire, membrane theory is applied to the cord body. The equation describing the tire surface in terms of tire construction parameters and cord properties has been given in the literature, but no solutions have been reported, probably due to its complexity. A solution of this equation, obtained by numerical techniques on a digital electronic computer, is presented in this paper. It is shown how this equation is combined with the equilibrium equations of the surface and how the force components in the principal directions are determined and the cord stresses calculated. The cord stresses in inflated tires are nonuniform, decreasing from crown to bead. The deformation of a simple cord network is considered, and it is shown how the cord stretch during tire expansion can be determined. It is found that the cord undergoes nonuniform stretch and shrinkage from crown to bead. These calculations have been confirmed by experimental x-ray measurements on metal-shadowed cord. It is suggested that the calculated and observed nonuniform cord stretch and shrinkage during tire expansion and curing are a direct result of the nonuniform cord tension. Photos, diagrs, graphs, tables, 16 refs.

STUDIES ON PAPER YARN. PART 17. EFFECT OF WIDTH OF CUT-MATERIAL-TAPE ON THE TWISTING PROPERTY AND QUALITY OF YARN. PARTS 18 AND 19. EFFECT OF WIDTH OF CUT-MATERIAL-TAPE ON THE DOUBLING AND TWISTING PROPERTY AND ON THE QUALITIES OF THE DOUBLED AND TWISTED YARN. K. Yamada. J. Soc. Textile Cellulose Inds. Japan 15, No. 7: 556-569 (1959). In Japanese (English summary). Through BCIRA 39: 3838 (1959). (71)

Part 17. The strength utilization rate becomes constant for 5-6 mm width material. The strength of hard, thick paper decreases at first, and then increases, on twisting; this tendency is greater, and the strength variation is greater, the wider the tape used. Soft, thin, strong paper cut to the narrowest width should be used. Parts 18 and 19. Yarn twisted with the heavier traveler from cut material containing 50% moisture is 150-300% stronger than normal. Economical production of doubled yarns is discussed.

FIBER ORIENTATION OF SPUN YARN. W. Itani. J. Textile Machy. Soc. Japan 12, No. 8: 29-33 (1959). In Japanese (English summary). Through BCIRA 39: 4096 (1959). (72)

The degree of surface orientation in the thicker portions of a spun yarn is very small. In every microscopic length of uneven yarn, the relation between twist (T) and yarn diameter (D) is $TD^{\tan\eta}$ = constant, where tan η is a constant (1.18-1.62) depending on twist, material, etc.

STUDY OF THE BREAKING STRENGTH OF A COTTON YARN. G. De Backer. Ann. Sci. Textiles Belges No. 2: 7-18 (1959). In French. Through BCIRA 39: 4097 (1959). (73)

The correlation between the strength of a cotton yarn, on the one hand, and the fiber length, fiber strength, and yarn count, on the other, has been investigated. A regression equation has been derived, and a nomogram based on this equation is presented.

EXAMINATION OF THE PHYSICOMECHANICAL CHARACTERISTICS OF CABLED YARNS USED FOR THE MANUFACTURE OF PNEUMATIC TIRES. G. Nadory. Acta Tech. Acad. Sci. Hungar. 22, No. 1: 27-52 (1958). Through BCIRA 39: 3936 (1959). (74)

Changes in breaking strength and elongation of cotton yarns by single twisting (ZZ) and cord twisting were examined as a function of twists; 31/4, 39/5, and 39/5 /3 yarns and cords were examined. Cord structures with the same strength and elongation can be produced with different twist combinations. The preparing and cord twists to give chosen strength characteristics can be determined from a 3-dimensional figure.

INFLUENCE OF PROPERTIES OF TEXTILE MATERIAL ON SPUN YARN. PART 4. BREAKING STRENGTH OF STAPLE YARN OF FIBERS OF UNEQUAL LENGTH. A. Ikeda, I. Okano, Y. Ikegami, and Y. Nakagawa. J. Soc. Textile Cellulose Inds. Japan 15, No. 7: 552-555 (1959). In Japanese (English summary). Through BCIRA 39: 3934 (1959). (75)

Theoretical equations for critical length and the breaking strength of spun yarns from fibers of unequal length are derived. The relation between the shape of the staple diagram and the yarn breaking strength was studied. Experimental results for viscose spun rayon agree well with calculated values.

FABRIC PRODUCTION C

Warping, slashing, yarn preparation C1

WEAR OF VARIOUS TEXTILE GUIDE MATERIALS. PART 2. HOW THE AVERAGE CONTACT PRESSURE AND APPARENT COEFFICIENT OF FRICTION VARY WITH THE GROWTH OF WEAR OF THE GROOVE. K. Nakajima. J. Textile Machy. Soc. Japan 12, No. 8: 9-16 (1959). In Japanese (English summary). Through BCIRA 39: 4055 (1959). (76)

In a wear experiment of cylindrical test pieces rubbed against running yarn, contact pressure decreases with the growth of wear of the groove even if yarn tension is kept constant. Theoretical formulas are derived (1) for the average contact pressure, and (2) for the apparent coefficient of friction, to estimate the effects of compressibility of the yarn on the contact pressure.

REPLACEMENT OF STARCH PRODUCTS BY AGAR. I. Burova. Tekstil. Prom. No. 4: 78 (1959). In Russian. Through BCIRA 39: 4056 (1959). (77)

Agar from Phyllophora can be used instead of starch for sizing; it is relatively easily soluble in cold water and can be hydrolyzed with dilute acid.

SIZING WITH POLYVINYL ALCOHOL. I. V. Bykov. Tekstil. Prom. No. 2: 56 (1959). In Russian. Through BCIRA 39: 4057 (1959). (78)

BEAMING AND YARN STRESSES ON SIZING MACHINES. K. Ramaszeder. Magyar Textiltech. 10, No. 7: 245-250 (1958). Through BCIRA 39: 3844 (1959). (79)

Stressing of the sized warp after drying is critical because of breakage of the size coating; the stress on cotton yarns should not exceed 0.75-1% of the elongation. Beaming of warp yarn at constant tension cannot be ensured even by automatic regulation; of the devices for sizing machines, stepless mechanical speed control and hydraulic or differential power control appear most suitable. Each yarn-stressing unit should be equipped with a self-contained motor drive tuned to the proper speed.

FACTORS AFFECTING WARPING EFFICIENCIES IN TERRY CLOTH MANUFACTURE. T. Hargreaves. Textile Mfr. 85: 449-451 (Oct. 1959). (80)

Recent developments in creels, tension arrangements, speeds, and capacities are discussed. Photos, diagrs.

REDUCING VARIATIONS IN WINDING TENSIONS. U. Bhattacharya. Indian Textile J. 70: 33-34 (Oct. 1959). (81)

A theoretical explanation of the dependence of tension variations on the number of discs employed.

YARN TENSION CONTROL IN WINDING. PART 5. D. Brunnschweiler. Textile Recorder 77: 71-72 (Nov. 1959). (82)

The requirements of a yarn tension device, the uses of tension, factors in tension application, and tension compensating devices are considered. Photos, diagr.

YARN TENSION CONTROL IN WINDING. PART 6. D. Brunnschweiler. Textile Recorder 77: 61-62, 69 (Dec. 1959). (83)

In this concluding article, the author discusses methods of controlling the density of winding packages (by one or more pressers applied to the surface of the package, or through yarn tension), and the measurement and recording of winding tension. Photos, diagrs.

Weaving C2

ANNOYING VIBRATIONS IN A WEAVING MILL AND THEIR ELIMINATION. J. Geiger. Textil-Praxis (English ed.) No. 3: 112-114 (Sept. 1959). (84)

Loom vibration can be considerably reduced by installing equalizers on the loom. Diagr, graphs, 2 ref.

TREND OF DEVELOPMENTS IN SILK WEAVING. O. Franzen. Melliand 40, No. 4: 236-240 (1959). (85)

LOOMFIXER AND HIS JOB. PART 13. W. Westbrook. Textile Bull. 85: 56, 58 (Dec. 1959). (86)

Recovering and preventive maintenance practices for binders are covered. Diagrs.

WEFT INSERTION BY WATER JET. K. Greenwood (Brit. Rayon Research Assoc.). Textile Recorder 77: 66-68 (Nov. 1959). (87)

Operational details and production figures are given for the Czech Kovo loom. A comparison with other systems of picking (shuttle, gripper, air jet) shows that the water-jet method has by far the lowest energy requirements. The main disadvantage of the water-jet loom is the presence of the water itself and the limitation of weaving to unsized warps. Photos, diagr.

WEFT INSERTION BY WATER JET. PART 2. K. Greenwood. Textile Recorder 77: 63-64, 73 (Dec. 1959). (88)

A comparison between the Kovo water-jet loom and conventional automatic looms with regard to capital investment, production costs, and labor productivity is presented. The data are based on the assumption that the Czech polyamide fiber Silon is used.

THEORETICAL INVESTIGATION OF AUTOMATIC LETOFF MOTIONS. M. Jederan. Magyar Textiltech. 10, No. 6: 212-218 (1958). Through BCIRA 39: 3848 (1959). (89)

Motions may be classified according to whether regulation is by weight, linkage, or release of the brake. They were evaluated from the viewpoint of even thread tension, a condition met by only a few designs, e.g. ATK-100 looms (through a special linkage) and the Puskas motion (release of brake). The accurate shape of brake beams used with feeler-type automatic motions is of special importance since any eccentricity will appear enlarged in the braking force; wooden beams cannot be used.

INSTALLATION OF A CLOSED SHED JACQUARD MECHANISM. B. Gross. Textil-Praxis (English ed.) No. 3: 115-119 (Sept. 1959). (90)

Detailed directions are given for the installation of a single lift closed shed jacquard mechanism on a loom. Diagrs.

IDEAS UNDERLYING WEAVING MACHINE PATENTS. PART 6. R. Rossmann. Textil-Praxis 14, No. 8: 793-796 (1959). In German. Through BCIRA 39: 3845 (1959). (91)

A further 10 circular looms are reviewed and their construction criticized. (For previous parts see abstr. 2357/59, 2358/59, 2956/59, and 4127/59).

SPRING CLUTCH: A NOVEL COMPONENT OF THE LOOM DRIVE. G. Kadegge. Melliand 40, No. 4: 240-246 (1959). (92)

The highly elastic spring clutch was developed in order to reduce wear on the motor from load fluctuations. The clutch permits the motor to lead or to lag in phase, if it is relieved or loaded, by using the kinetic energy of the rotating loom and parts of the drive for the equalization of the load fluctuations. Its construction and operation are described. Photo, diagrs, graphs, 2 refs.

INDIAN HANDLOOM INDUSTRY. J. S. Symonds (Brit. Nylon Spinners). Nylon Outlook 2, No. 6: 24-29 (Summer 1959). (93)

The problems of the industry and its prospects for using nylon are discussed. Photos.

EFFECT OF CERTAIN VARIABLES IN WARP SIZING ON WEAVABILITY. H. W. Saffer, H. A. Rutherford, and D. M. Cates (Textile Research Center, N. C. State Coll.). Textile Research J. 29: 849-857 (Nov. 1959). (94)

The effect of certain variables (size add-on, degree of polymerization of size, and temperature of application) in sizing was determined in relation to simulated weaving for a cotton yarn sized with poly(ethylene oxide). Increasing the size add-on decreased the tendency of the sized yarns to shed fibers and size. The effect of resin DP varied with size add-on. At low add-ons an increase in DP was accompanied by an improvement in weavability which was attributed to the concomitant increase in toughness of the resin; after very high values of DP were reached, however, weaving became unsatisfactory, apparently because of poor anchoring of resin to yarn. At high add-ons an increase in resin DP resulted in improved weaving performance for all ranges of DP, and this effect was attributed both to the increase in toughness of the resin film and to the increase in film coverage of the yarn surface and in film thickness achieved at high add-ons. As the temperature of application was raised, penetration of size through yarn increased. This resulted in poor weavability at low DP's; at high DP's, however, weavability was improved, apparently because the increase in temperature permitted better anchoring of size to yarn. Diagr, graphs, 6 refs.

APPARATUS FOR INVESTIGATION OF MECHANICAL PROPERTIES OF WARP YARN. C. Yuan-nu and V. C. Chistov. Tekstil. Prom. No. 4: 43-44 (1959). In Russian. Through BCIRA 39: 4059 (1959). (95)

Effects of friction, elongation, and twist on warp yarn are described.

REEDING. P. Kreutz. Textil-Praxis 14, No. 8: 796-798 (1959). In German. Through BCIRA 39: 3850 (1959). (96)

Best reeding methods are discussed with emphasis on the fact that correct reeding leads to good weaving results.

AN ASPECT OF PRODUCTIVITY ADAPTED TO WEAVING IN SPAIN. J. M. Homedes Massanet. Ingenieria Textil 26, No. 138: 214-219 (May/June 1959). In Spanish. Through BCIRA 39: 4007 (1959). (97)

HOW TO "FUR" SHUTTLES WITH NYLON. Textile Inds. 123: 88-89 (Dec. 1959). (98)

Illustrated with photographs.

COST REDUCTION IN SMALLWARE WEAVING BY USING THE SO-CALLED CROSSED PICK TECHNIQUE. E. Peuster. Melliand 40, No. 4: 246-251 (1959). (99)

The technique consists in inserting simultaneously two wefts, into two different sheds formed above each other, during each loom cycle. The equipment necessary for this system on dobby and jacquard smallware looms is described.

STUDY OF SET MARKS IN ACETATE FABRICS. S. Kirikae and K. Tomizuka. J. Soc. Textile Cellulose Inds. Japan 15, No. 8: 647-651 (1959). In Japanese (English summary). Through BCIRA 39: 4102 (1959). (100)

The occurrence of set marks and the relation with weaving conditions was examined. Set marks are caused by the relation between relaxation in the warp yarns and the beating effect. To eliminate them it is necessary to form a straight warp line, to restart the loom within 5 min, and to stop the loom at 330° crank angle.

STUDY OF SOME FACTORS INVOLVED IN PNEUMATIC WEFT PROPULSION. V. Duxbury, P. R. Lord, and T. B. Vaswani (Coll. Science & Technol., Manchester) J. Textile Inst. 50: P558-P573 (Oct. 1959). (101)

Pneumatic propulsion of weft involves many complex factors and, in this paper, an attempt is made to derive simplified expressions connecting forces and velocities with time and distance. As this involves somewhat arbitrary assumptions, preliminary experimental results have been included to test their validity and they appear to be reasonable, but more work is required before they can be fully established. A discussion on vortex motion and gravity effects is included. It is shown that, despite a lack of torsional restraint of the weft, no significant loss in twist occurs in weaving. Noise is briefly discussed. Diagrs, graphs, tables, 5 refs.

RAYON PULL-OUT THREADS IN LOOP PILE FRIEZE WEAVING. E. I. du Pont de Nemours & Co., Textile Fibers Dept., Wilmington, Del. Nov. 1959. 2 p. Bull. R-39 (replaces Bull. R-10). Free. (102)

Optimum rayon packages and the advantages of rayon over cotton in pull-out threads are presented.

Knitting C3

PATTERN SCOPE OF WARP KNITTING EQUIPMENT. PART 12. A. Reisfeld (Gehring Textiles Inc.). Knitted Outerwear Times 27: 50-51, 59-60 (Nov. 23, 1959). (103)

The principles of jacquard selection as applied to warp knitting machines. Diagrs.

PATTERN SCOPE OF WARP KNITTING EQUIPMENT. PART 12A. A. Reisfeld. Knitted Outerwear Times 27: 7, 9, 26 (Dec. 14, 1959). (104)

This installment continues the discussion of warp mechanisms and structures based on the jacquard principle. It covers cut presser effects, raised or knop effects, color effects, and plush or loop effects.

FUNCTIONING OF MAYER INTERLOCK SWEATER-STRIP MACHINE. Knitted Outerwear Times 28: 5-9 (Jan. 4, 1960). (105)

AUTOMATION IN FULLY FASHIONED OUTERWEAR AND UNDERWEAR MACHINES. B. A. Monk (S. A. Monk Ltd). J. Textile Inst. 50: P589-P597 (Oct. 1959). (106)

The following automatic mechanisms are described: sequence drum, bluffing, rack-out, bar feed mechanism, fabric takeoff, dual motor drive, yarn deflecting mechanism. Diagrs.

SCHAFFHOUSE DJFU DOUBLE SYSTEM JACQUARD FLAT MACHINE. Schaffhauser Strickmaschinenfabrik. Hosiery Trade J. 66: 87 (Nov. 1959). (107)

A feature of the DJFU model is the loop transfer which is actually carried out during the same traverse of the carriage in which the needles are actuated for knitting, a factor which contributes considerably towards improving productivity. Other features are noted, and its operation is described. Photo.

NAPPED AND SHEARED INTERLOCK: KNITTING WITH COTTON-SPUN ORLON YARN. C. Reichman. Knitted Outerwear Times 28: 3, 19 (Jan. 4, 1960). (108)

EUROPEAN KNITTING DIARY. R. Innes. Hosiery Trade J. 66: 93-97 (Nov. 1959). (109)

Among the developments described are: Barfuss KR bearded needle Raschel and BT lace Raschel; a brushing unit for knit fabrics; Setex RS 3075 tensioning device and tension meter and RS 3130 tension meter; needle block holding individually insertable needles for warp knitting machines; and needle detector for seamless hosiery machines. Photos, diagr.

WEARING PROPERTIES OF FULLY FASHIONED NYLON STOCKINGS. D. E. Bradbury, W. D. Ewan, and W. A. Hay (Brit. Nylon Spinners Ltd). J. Textile Inst. 50: T624-T639 (Nov. 1959). (110)

Wearing trials on fully fashioned stockings were carried out over some years. The design of the trials, the occurrence of various types of faults, the life of the stockings in wear and its relation to the construction of the stocking and the properties of the yarn are summarized. The denier of the yarn in the panel has a large effect on the mean life of the stocking and the denier of the splicing yarn has a smaller effect. Filament denier in multifilament yarns has a small effect, twist, within the range examined, has no appreciable effect, and yarn draw ratio no effect. The courses per inch have a marked effect on the wearing properties and gage has a smaller effect. When the denier of the splicing yarn is greater than the denier of the yarn in the panel, runs starting in the panel are slightly more frequent than those originating in the splicing, but splicing faults predominate in 30-den. stockings with 30-den. splicing. The majority of faults in the panel start as snags or tears, and splicing faults are equally divided between wear at toe and elsewhere. Photomicrographs, graphs, tables, 2 refs.

HOW TO CONVERT MODEL AI FOR PLUSH KNIT. C. Reichman. Knitted Outerwear Times 27: 3, 11 (Dec. 7, 1959). (111)

Converting the Wildman Jacquard model AI for napped and sheared interlock sweater strips.

DESCRIPTION OF A CIRCULAR KNITTING UNIT WITHOUT NEEDLES. J. P. Pons. Knitted Outerwear Times 27: 9, 11 (Dec. 7, 1959). (112)

This paper describes a circular knitting machine for the production of links and links fabrics which has a normal cylinder, yet which is equipped with special hooks which replace the real needles. Diagrs.

FEATURES OF 25-BAR BARFUSS RASCHEL KNITTING MACHINE. C. Rotenstein. Knitted Outerwear Times 27: 5, 7, 28 (Nov. 30, 1959). (113)

ASPECTS OF WEFT KNITTING MACHINE DESIGN AND ENGINEERING. J. C. H. Hurd. Knitted Outerwear Times 27: 52-58 (Nov. 23, 1959). (114)

LACING TECHNIQUE ON SINKER WHEEL SPRING NEEDLE UNITS. J. B. Lancashire. Knitted Outerwear Times 27: 5-9 (Dec. 28, 1959). (115)

KNITTING MACHINE DESIGN: MEETING MANUFACTURERS' REQUIREMENTS. J. C. H. Hurd, G. A. Buswell, and E. Start. J. Textile Inst. 50: P632-P653 (Nov. 1959). (116)

Design developments in machines for the production of hosiery, half-hose, outerwear, and underwear are reviewed. Diagrs, 4 refs.

FULL-FASHIONED ONE-COLORED TURNDOWN KNIT COLLARS WITH TRANSFER CHECKS. H. Fleck. Melliand 40, No. 4: 256 (1959). (117)

MANUFACTURE OF HIGH PILE FABRICS ON RASCHEL EQUIPMENT. Knitted Outerwear Times 27: 9, 11 (Dec. 28, 1959). (118)

CAUSES OF LENGTH VARIATION IN NYLON AND PERLON STOCKINGS. F. Fourné. Textil-Praxis (English ed.) No. 3: 119-125 (Sept. 1959). (119)

The effects of yarn stretch and count, tension during winding and unwinding, sizing, atmospheric conditions, knitting conditions, and preboarding on length variation are discussed. Graphs, tables, 5 refs.

Fabrics C4

LIGHTWEIGHT MEN'S-WEAR FABRICS. Textile World 109: 49-51 (Dec. 1959). (120)

Report on the dyeing, spinning, and weaving of a 6.3 oz worsted/Zefran suiting. Photos.

CLOTH TERMS AND PARTICULARS: MIXTURE FABRICS: COTTON/WOOL AND COTTON/SILK. W. Middlebrook. Textile Mfr. 85: 456-458 (Oct. 1959). (121)

Descriptions, yarns, weave, ends, and picks of cotton/wool and cotton/silk fabrics, including alpacas, crepes, cords, haircloth, taffetas, poplin types, etc.

PROCESSING ARTIFICIAL AND SYNTHETIC FIBERS. B. E. Golovestikov. Tekstil. Prom. No. 2: 11-14 (1959). In Russian. Through BCIRA 39: 4060 (1959). (122)

A Nitron/wool fabric has been produced which has been shown to be superior to pure wool. The blending of the fibers and subsequent processing are described.

OPTIMUM CLOTH WIDTH AND MACHINE SIZE IN TEXTILE MANUFACTURE. D. Brunnschweiler (Coll. Science & Technol., Manchester). J. Textile Inst. 50: P574-P588 (Oct. 1959). (123)

Some effects of creel size and cloth width in relation to production costs are considered for beam warping, tufting, warp knitting, and weaving machines. Graphs are given illustrating cost variation in particular instances. Graphs, tables, 3 refs.

STRUCTURE-PROPERTY RELATIONSHIPS IN SYNTHETIC FIBER PAPERS. R. A. A. Hentschel. Tappi 42: 979-982 (Dec. 1959). (124)

This paper summarizes the interrelationships of the physical properties of synthetic fiber papers with (1) the mechanical variables of fiber length, fiber diameter, and sheet basis weight; and (2) the physical properties of the fibers making up the sheet. The relationships between fiber length and diameter and the tensile and tear strengths of synthetic fiber papers are developed. Graphs.

ELECTRIC BLANKETS. Consumer Bull. 42: 19-21 (Dec. 1959). (125)

The correct use and care of electric blankets are explained. Test results on 9 different blankets are presented.

REINFORCING ACTION OF GLASS AND ORGANIC FIBERS IN EPOXY LAMINATES. C. D. Doyle. Modern Plastics 37: 143-148, 152, 198, 200 (Nov. 1959). (126)

Whereas glass contributes stiffness and strength to its laminates, Dacron contributes flexibility and toughness. The toughness contribution of Dacron is especially apparent in impact tests. Thermal expansion tests, dynamic mechanical tests vs temperature, and stress relaxation tests at elevated temperatures all show that Dacron contributes added stiffness to its laminates at temperatures above the softening temperature of the resin matrix. The stiffening effect of Dacron at elevated temperatures is small and short-lived, however, compared to that of glass. Photomicrograph, graphs, 17 refs.

OPTIMUM DISCOUNT RATES FOR CLOTH OF SUBSTANDARD WIDTH. M. Sandelius and J. Lindberg (Swedish Inst. Textile Research). J. Textile Inst. 50: T583-T598 (Oct. 1959). (127)

The paper presents a method of determining discount rates for cloth of width less than an agreed standard width. By-products of the investigation reported here are the solutions of the problems of optimizing lay-marker and cloth widths. Graphs, tables, 3 refs.

KNITTING SPARE PARTS FOR HUMAN BODIES. Textile Inds. 123: 130-134 (Dec. 1959). (128)

The method of knitting arterial grafts of Fluflon to replace damaged arteries is described. Photos.

DESIGN IN WOVEN STRUCTURE. PART 79. GABARDINE AND WHIPCORD STRUCTURES. D. C. Snowden. Wool Rev. 33: 33, 35 (Nov. 1959). (129)

WOVEN FABRIC STRUCTURE: TWILLS TO DIAMONDS. Man-Made Textiles 36: 57 (Nov. 1959). (130)

WASH AND WEAR PROPERTIES OF NYLON SHIRTS. Z. M. Sudnik (Brit. Nylon Spinners). Nylon Outlook 2, No. 6: 30-35 (Summer 1959). (131)

A general description of the extent to which shirts made from nylon give satisfactory performance from the point of view of wash and wear is given, and methods of construction, making-up, finishing, and washing are outlined for Taslan textured and Schappe spun nylon yarns. Photos, photomicrographs, graphs, table.

"KNITTED" DESIGNS IN WOVEN FABRICS. H. Walter. Melliand 40, No. 4: 251-254 (1959). (132)

A method sometimes employed to produce "knitted" designs without the high elasticity of knitted fabrics is to weave the design with two thread systems. Examples are given. Diagrs.

FILAMENT WINDING: SOME BASIC PRINCIPLES. K. B. Turner. Modern Plastics 37: 116, 119, 122 (Dec. 1959). (133)

The winding of strong fibers to form reinforced plastic structures with epoxy and polyester resins is increasing in missile, spacecraft, and other applications. A brief presentation is made of the principles involved and problems encountered in winding continuous filaments on special equipment to form such items as lightweight pressure vessels. Diagrs.

SERVICE QUALITIES OF SHEER CURTAIN FABRICS. E. M. Cormany. J. Home Econ. 51: 871-874 (Dec. 1959). (134)

The results of this study indicate that sheer curtain fabrics made of cellulose fibers tend to be less satisfactory when subjected to light and laundering than are fabrics made of the resin or glass fibers. The Fade-Ometer can be used to reveal the trend related to the effect of sunlight on fabric strength. Further study of fiber damage due to light rays is needed to determine whether a factor which would represent so many hours in the Fade-Ometer equivalent to so many hours' exposure to natural light can be found for each fiber.

MEN'S WHITE SHIRTS. Consumer Bull. 43: 9-11 (Jan. 1960). (135)

A study was made of the construction and launderability of 15 brands of white cotton broadcloth men's shirts ranging in price from $1.75 to $8.95.

DESIGNING OF PILE FABRICS. E. B. Berry. Textile Bull. 85: 37-45 (Dec. 1959). (136)

This is the first of a series of articles reviewing pile fabric design and manufacture. The end-uses and spinning of various fibers in pile fabrics are described. The first 4 warp pile fabrics to be covered in the article (velvet, velour, plush, frieze) can be woven on the double shuttle plush loom. Its motions are described in detail.

ESTIMATION OF THE ABRASION RESISTANCE OF TEXTILE FABRICS. S. Köhler. Medd. TEFO No. 3: 1-23 (1959). (English summary). Through BCIRA 39: 3946 (1959). (137)

Plain and twill cotton fabrics for overalls and woolen cloth for soldiers' uniforms were tested in the laboratory (Schopper machine with emery paper, and the Schiefer method using the edges of watch springs--more appropriate for woolen cloth), and used overalls and uniforms made from them were examined after wear. Decrease in weight and tensile strength were measured. The laboratory tests showed a smaller loss of weight for the plain than for the twill cotton fabrics, but, depending on the yarn crimp, a small decrease in weight can be attended by a large loss of strength; equal warp and weft-crimps are desirable. The used overalls failed mainly because of tearing and chemical degradation. Abrasion had had little effect; the stiffer plain fabrics wore more at the edges of the sleeves and at creases.

WOMEN'S SWEATERS. Consumer Bull. 42: 12-15 (Dec. 1959). (138)

Criteria for well-constructed women's sweaters are discussed. The results of wear and laundering tests on a variety of sweaters are given. Photos.

TEXTILES IN AIR FILTRATION. E. Butterworth. Fibres 20: 327-328 (Nov. 1959). (139)

The properties of several types of fiber used in the manufacture of air filters are outlined, and examples of cleanable bag filters in industrial installations are given. Special attention is given to the recent development of an acetate fiber wadding filter. Photo, graphs.

LIGHTWEIGHT SUITING DEFECTS. R. B. Pressley. Textile World 109: 52-53 (Dec. 1959). (140)

Switching from heavy all-wool fabrics to 6 oz wool/Zefran or Dacron fabrics often causes seconds from thick and thin places and wavy cloth. Many of these seconds come from the letoff if it isn't prepared for the lighter fabrics. The letoff mechanism is examined, and a program for checking it is outlined. Diagr.

NEEDLE FELTING: MODERN CONCEPT OF AN ANCIENT MATERIAL. E. F. Didier (Torrington Co.). Textil-Praxis (English ed.) No. 3: 140-144 (Sept. 1959). (141)

Operation and construction of needle looms.

PILE FABRICS. AATCC Northern New England Sect. Am. Dyestuff Reptr. 48: 103-113 (Dec. 14, 1959). (142)

Forty-one pile fabrics, representing a wide range of weights and heights, were prepared to study structural characteristics of such fabrics and the effect of pile height, weight, fiber denier, softener, and fiber length on compressibility, recovery, and tendency to tuft or mat. Quantitative relationships were found for such structural characteristics as change of weight with height and for density of pile as a function of total fabric density, the latter relationship being a measure of efficiency of construction. Photomicrographs, graphs, tables, 9 refs.

FINISHING D

RECENT DEVELOPMENTS IN HANDLING AND FINISHING ARTIFICIAL CELLULOSIC TEXTILES. L. Martin. Teintex 24, No. 7: 467-483 (1959). In French. Through BCIRA 39: 3868 (1959). (143)

With reference to recently-developed regenerated cellulose fibers (Rovane, L.C., Z54, and BX), the author discusses: (1) preparation (elimination of sizing agents and impurities interfering with the hydrophilic properties of the material); (2) dyeing and printing; (3) final finishing processes.

NEW PRODUCTS DEVELOPED SINCE NOVEMBER, 1958. Am. Dyestuff Reptr. 48: 67-98 (Dec. 14, 1959). (144)

Products which have been placed on the market or further developed since November 1958 are arranged according to the classifications: (1) chemicals, (2) coloring materials, and (3) equipment. Suppliers are listed in alphabetical order and the individual products and their properties are noted under the company name.

CONTINUOUS WET PROCESSING OF COTTON/ACRILAN WORK-CLOTHING FABRICS. AATCC South Central Sect. Am. Dyestuff Reptr. 48: 35-41 (Nov. 2, 1959). (145)

Using conventional cotton processing equipment for preparing, bleaching, and dyeing, procedures have been developed to produce fabrics of equal colorfastness to cotton fabrics and improved abrasion, tear resistance, and acid resistance. Photomicrographs, tables, 9 refs.

Chemical processes D1

NEW ROLE FOR SOFTENING AGENTS IN TEXTILE FINISHING. A. J. Hall. Textile Recorder 77: 65-67 (Dec. 1959). (146)

Since the introduction of synthetic resin finishing processes, the field of usefulness of softeners has been much extended, for they have been found useful for correcting not only harshness of handle but also a number of other defects or undesirable characteristics which can arise from the use of resins in finishing.

PROGRESS IN WASH-AND-WEAR WOOL. J. F. Krasny and J. Menkart (Harris Research Labs.). Am. Dyestuff Reptr. 48: 114-117 (Dec. 14, 1959). (147)

This paper is an attempt to show where wool stands at present in the wash-and-wear field and what problems need to be overcome for further progress. A series of fabrics was constructed to study the effect of structural factors in detail. Preliminary results indicate that, in lighter, more open structures, shrinkproofing and setting finishes, as well as proper construction, will be needed in order to obtain full wash-and-wear properties. Photomicrographs, graphs, 8 refs.

IMPROVEMENT OF SOIL-RESISTANCE OF RESIN FINISHED FABRICS. PART 1. COMBINATION EFFECTS OF VINYL POLYMERS WITH DIMETHYLOL-ETHYLENE-UREA. T. Matsukawa. J. Soc. Textile Cellulose Inds. Japan 15, No. 7: 570-575 (1959). In Japanese (English summary). Through BCIRA 39: 3890 (1959). (148)

High soil retention is associated with the use of acrylic polymers. Replacement with various vinyl polymers was examined. A copolymer of maleic anhydride and vinyl methyl ether was most effective. Fabric treated with a mixture containing one-fifth by weight of the dimethylol ethylene urea had excellent crease resistance, durable to washing; soil can be removed by water without any detergents.

CHANGES OF COLOR CAUSED BY FLUORESCENT BRIGHTENING AGENTS. J. S. Ward and D. Blackburn (Courtaulds Ltd). (Letter to the editor). J. Soc. Dyers Colourists 75: 493 (Oct. 1959). (149)

Fibrofix, a cyanamide-formaldehyde compound, has a very efficient quenching effect on fluorescent brightening agents, and treatment of dyed material in 1% Fibrofix protects it against changes of color on subsequent washing in the presence of brightening agents.

CYANOETHYLATION FOR BETTER COTTON TEXTILES. Melliand 40, No. 4: 306-308 (1959). (150)

The nature of the cyanoethylation process, the properties of cyanoethylated cotton, and the key aspects of the manufacturing process are briefly reviewed. Graphs, 4 refs.

INFLUENCE OF $Na_5P_3O_{10}$-$CaCl_2$-H_2O PHASE EQUILIBRIUM ON LAUNDERING OF COTTON FABRIC. W. J. Diamond and J. E. Grove. Textile Research J. 29: 863-872 (Nov. 1959). (151)

Study of the phase equilibrium diagram for the $CaCl_2$-$Na_5P_3O_{10}$-H_2O system suggested that washing phenomena would depend on the phase region as well as specific $CaCl_2$ or $Na_5P_3O_{10}$ concentration. Radioactive zirconyl phosphate was used as a redeposition soil, and tagged sodium alkyl aryl sulfonate was used for determination of detergent adsorption on cotton fabric. Ca^{++} concentrations from 0 to 5.5 mmoles/l were reacted with sodium tripolyphosphate concentrations from 0 to 3.2 mmoles/l. The quantity of radioactive ingredients deposited was measured after a 10-min wash cycle in a Turg-O-Tometer. Desorption by a 5-min rinse cycle was also evaluated. Both redeposition and rinsability depend upon the $CaCl_2$-$Na_5P_3O_{10}$ phase region in which washing is performed. Higher tripolyphosphate concentrations in the wash cycle retard redeposition and promote the rinsing of detergent from cotton fabrics. Hardness of water definitely influences both redeposition and rinsability. The influence of tripolyphosphate on redeposition is most pronounced at low soil loads. Graphs, table, 11 refs.

SOME GENERAL AND NEW USES FOR HYDROGEN PEROXIDE. D. Walkington (Can. Inds. Ltd). Can. Textile J. 76: 48-50, 53 (Nov. 27, 1959). (152)

In addition to its major use as a bleaching agent, hydrogen peroxide is finding application as a propellant, for oxygen generation in foam rubber, as a chemical reactant, and as a catalyst.

GLYCERINE AND ITS DERIVATIVES IN TEXTILES. G. Machell. Textile Mfr. 85: 442-443 (Oct. 1959). (153)

Applications in yarn conditioning and sizing, dyeing and printing, alkyd resin preparation, and finishing are summarized.

REACTION OF EPOXIDES WITH COTTON CELLULOSE IN THE PRESENCE OF SODIUM HYDROXIDE. J. B. McKelvey, B. G. Webre, and E. Klein (So. Reg. Research Lab.). Textile Research J. 29: 918-925 (Nov. 1959). (154)

The reactions of various commercially available epoxides with cotton cellulose in the presence of sodium hydroxide have been investigated at 25°, 50°, and 95° C. The effects of solvents and alkali content of the yarn steep on the epoxy add-on have been studied. Tables, 43 refs.

CYANOETHYLATION FOR BETTER COTTONS. Fibres 20: 329-331 (Nov. 1959). (155)

This article describes the nature and properties of cyanoethylated cotton and points out 9 areas in which it is superior to the native product. A report on key aspects in the cyanoethylation treatment of cotton is also discussed. Graphs, table, 4 refs.

FLAMEPROOFING OF CELLULOSE. A. F. Childs (Albright & Wilson). Dyer 122: 585-589 (Nov. 6, 1959). (156)

The mechanism of the burning process, the effect of flameproofing agents on cellulose decomposition, theories of flameproofing, requirements of a flame resistant finish, and the use of phosphorus compounds are briefly reviewed. 14 refs.

ODOR MODIFIERS IN THE TEXTILE INDUSTRY. K. Bergwein. Melliand 40, No. 4: 290-292 (1959). (157)

The use of blended aromatics for diluting, masking, or altering unpleasant odors is briefly discussed.

STUDIES ON THE SQUEEZING ROLLERS OF WOOL WASHING MACHINES. PART 3. EFFECT OF TOP ROLLER HARDNESS. H. Sanuki, H. Nishizaki, and O. Kawakami. J. Textile Machy. Soc. Japan 12, No. 8: 21-28 (1959). In Japanese (English summary). Through BCIRA 39: 4078 (1959). (158)

The effect on squeezing efficiency and squeezing unevenness was examined. The hardness of the top roller greatly influences squeezing efficiency; there is a most suitable hardness for maximum efficiency in every load condition on the top roller (70-80° from the weight-hardness curve). The causes of a decline in efficiency when a metal roller is used have been examined.

PREPARATION AND PROPERTIES OF PARTIALLY PHOSPHONOMETHYLATED COTTON. S. R. Hobart, G. L. Drake, Jr., and J. D. Guthrie (So. Reg. Research Lab.). Textile Research J. 29: 884-889 (Nov. 1959). (159)

Cotton fabrics have been phosphonomethylated on commercial scale textile finishing equipment and the properties of the treated fabrics evaluated. At sufficiently high phosphorus contents the fabrics have a permanently starched feel and improved wet crease resistance. Good flame resistance is observed for the ammonium salt form of the fabrics. The treated fabrics are more hydrophilic than the controls. Stability of the phosphorus content to alkaline treatments is very high. Considerable improvement over untreated cotton is shown by the copper salt form in regard to microbiological deterioration. Graphs, tables, 12 refs.

PRESENT-DAY TRENDS IN BLEACHING. B. K. Easton (Food Machy. & Chem. Corp.). Am. Dyestuff Reptr. 48: 24-29 (Nov. 30, 1959). (160)

Blends of cotton and the acrylic, polyester, and triacetate fibers are discussed. Batch procedures which can be adapted to today's equipment are suggested. A review of current practices in the preparation and bleaching of 100% cotton fabrics reveals some interesting advances recently made in these procedures, particularly in the handling of the heavier fabrics, such as drills, twills, satins, etc., in open width. Why large yardages of these fabrics are still handled in batch form and the possibilities for greater use of continuous methods for processing these fabrics is discussed. Tables, 2 refs.

SOME OBSERVATIONS ON BLEACHING. G. Stead (Can. Inds. Ltd). Can. Textile J. 76: 53-55 (Nov. 27, 1959). (161)

A procedure for bleaching knit goods in the winch machine which is designed to bleach at minimum chemical cost and in a reasonable time is outlined.

EPOXY RESINS IN CREASE-RESIST FINISHING. J. T. Marsh. Textile Recorder 77: 69-70, 72 (Nov. 1959). (162)

The properties and uses of epoxy compounds for imparting crease-resist properties to cellulosic fabrics without, at the same time, introducing the tendency for chlorine to be retained after laundering, are discussed. 3 refs.

CROSS-LINKING OF PARTIALLY CYANOETHYLATED COTTON. PART 1. CARBAMOYLETHYLATION AND FORMALDEHYDE-CURING. M. Negishi and N. Aida (Gumma Univ.). Textile Research J. 29: 982-989 (Dec. 1959). (163)

Carbamoylethylation of the cotton fabrics was performed by the hydrogen peroxide treatment of partially cyanoethylated cotton without greater oxidation damage. By mild acid-catalyzed formaldehyde-curing, the crease resistance of the carbamoylethylated cotton fabrics was improved above that of the cyanoethylated cotton, indicating some extent of formation of N-methylene amide cross link. After curing, the carbamoylethylated cotton retained good dyeing properties. Graphs, tables, 9 refs.

CROSS-LINKING OF PARTIALLY CYANOETHYLATED COTTON. PART 2. FORMALDEHYDE-CURING AFTER AMIDOXIMATION. M. Negishi, H. Ito, and N. Aida (Gumma Univ.). Textile Research J. 29: 990-995 (Dec. 1959). (164)

By acid-catalyzed or non-catalyzed formaldehyde-curing, crease resistance of the amidoximates of partially cyanoethylated cotton fabrics was improved significantly without much loss in tensile strength and elongation; the great affinities for acid dyes were retained. From the results, it was deduced that intermolecular cross links between amidoxime or hydroxamic acid groups might be formed. Graphs, tables, 3 refs.

CONTROL METHOD FOR PEROXIDE BLEACHING LIQUOR. M. G. Shikher and T. S. Ryzhakova. Tekstil. Prom. No. 4: 58-59 (1959). In Russian. Through BCIRA 39: 4066 (1959). (165)

By use of a caustic (instead of an alcoholic) solution of phenolphthalein as indicator, the permanganate method of analysis permits the determination both of hydrogen peroxide and caustic soda on a single sample. A 1.5 N solution of phenolphthalein in 0.1 N sodium hydroxide is diluted with distilled water in 1:10 ratio.

CHEMICAL MODIFICATION OF FLAX CELLULOSE. PART 1. ACTION OF ACRYLONITRILE, CHLOROACETIC ACID, AND BETA-PROPIOLACTONE. N. Gokal and J. K. Skelly (Coll. Technol., Belfast). J. Soc. Dyers Colourists 75: 486-493 (Oct. 1959). (166)

The reaction of flax yarn with acrylonitrile, chloroacetic acid, and beta-propiolactone in presence of sodium hydroxide as catalyst was studied. The results are compared with those obtained with cotton in earlier work. Under the experimental conditions used, measurable differences in reactivity between the two fibers are apparent. The cause of this difference in reactivity has been investigated and is explained by consideration of the effect of different concentrations of sodium hydroxide solutions on the two fibers. In general, for a given alkali concentration flax absorbs more sodium hydroxide and water than does cotton. This gives a greater change in the fine structure of the flax fiber produced by mercerizing strengths of alkali. The effect of mercerizing-strength sodium hydroxide on the nodes present in flax fiber, which act as major points of entry to the fiber, is also pointed out. Graphs, tables, 24 refs.

DEVELOPMENT OF A RAPID BLEACHING SYSTEM. J. Dungler. Textil-Praxis 14, No. 8: 810-813 (1959). In German. Through BCIRA 39: 3861 (1959). (167)

The Dungler continuous bleaching method for cotton fabrics is described, and its advantages discussed.

PREPARATION AND BLEACHING. PART 7. PRINCIPAL BLEACHING MATERIALS AND METHODS. K. S. Campbell (N. C. State Coll. School of Textiles). Textile World 109: 85, 94-95 (Dec. 1959). (168)

The preparation and use of sodium hypochlorite and peroxide bleaching baths for cotton are covered. A table is included showing typical formulas used to bleach cotton in various forms, e.g. fiber, stock, yarn, knit and woven fabric, with hydrogen peroxide.

OBSERVATIONS ON THE USE OF COPPER FORMATE AS A ROTPROOFER FOR COTTON FABRIC. G. R. F. Rose, J. B. Howdon, and C. H. Bayley (Nat. Research Coun. of Canada). Textile Research J. 29: 996-1005 (Dec. 1959). (169)

The data presented in this paper suggest that the copper in the treated fabric is mostly in the form of cuprous oxide, which seems to be produced in considerable amounts when cupric formate is heated in air. The incorporation into the surface of cotton fabric of cuprous oxide, as produced on reducing Fehling's solution, affords protection against microbiological deterioration similar to that shown by cupric formate treated cotton. Graph, tables, 13 refs.

FLAMEPROOFING OF COTTON FABRICS. C. Weimann. Teintex 24, No. 7: 483-486 (1959). In French. Through BCIRA 39: 3894 (1959). (170)

In this review, the author refers to the article of B. V. Ponomarenko (abstr. 3354/59) and to several patents (British and American) dealing with flameproofing of cotton fabrics.

WATER REPELLENT FINISHES. L. Claus. Rev. Textilis 15, No. 6: 23-33; No. 7/8: 25-37 (1959). In Dutch. Through BCIRA 39: 3896 (1959). (171)

Methods of imparting water repellency to fabrics are reviewed, with special reference to the use of metal soaps, paraffin emulsions, chromium/fatty-acid derivatives, resins, silicones, isocyanates, pyridine derivatives, ethyleneimine derivatives, and fluorinated compounds. Tests for determining the water-repellency are briefly described. 32 refs.

CREASE-RESISTING PROCESS: EFFECT ON DYESTUFFS. J. T. Marsh. Textile Mfr. 85: 465-468, 472 (Oct. 1959). (172)

The effects of various resins on the lightfastness of direct, azoic, reactive, vat, and disperse dyes and on the photochemical degradation of cellulose fabrics containing sensitizing dyes are reviewed, with pertinent literature references. Graph, tables.

STUDIES ON THE CREASE RESISTANT FINISH WITH UREA-FORMALDEHYDE RESIN. PART 12. MECHANISM OF THE CREASE RESISTANT FINISH WITH DIMETHYLOL UREA TREATMENT. M. Hida, S. Niino, and Y. Nagata. J. Soc. Textile Cellulose Inds. Japan 15, No. 8: 656-662 (1959). In Japanese (English summary). Through BCIRA 39: 4076 (1959). (173)

Crease recovery, imbibition value, and elastic recovery of viscose rayon fabrics treated with dimethylol urea were examined before and after repeated soaping. Compared with formaldehyde treatment, the increase of elastic recovery was small. The improvement of crease recovery may be caused by deposition of resin within the fiber but surface resin, easily removed by soaping, also contributes to it.

STABILITY TO LAUNDERING OF FABRICS MADE FROM CELLULOSIC FIBERS. G. V. Lund and W. T. Waters (Courtaulds (Ala.) Inc.). Textile Research J. 29: 950-960 (Dec. 1959). (174)

The laundering shrinkage of fabrics made from cellulosic staple fibers can be broken down into 3 types: (1) fiber relaxation type, due to relaxation of strains imposed on fibers during processing; (2) fabric relaxation due to fiber and yarn swelling which results in crimp adjustment and subsequent shrinkage; and (3) felting or progressive type due to fiber movement. The fabric relaxation type of shrinkage is apparently dependent upon the degree of fiber swelling in water, while the felting or progressive type of shrinkage is primarily dependent upon the ease of stretch of the fibers in the wet state. Yarn and fabric geometry also affect both shrinkage types. In general yarn and fabric constructions which give more bulk or less compactness will have less of the relaxation type of shrinkage potential. For felting type shrinkage, factors which facilitate relative fiber movement under severe water agitation will result in greater felting shrinkage. Loose fabric construction and weave type, high yarn twist with warp and filling of similar twist direction, finer denier, and longer staple length all tend to increase the felting potential of cellulosic staple fabrics. Photos, diagrs, graphs, tables, 18 refs.

Dyeing and printing D2

FIBER REACTIVE DYES. Textile Inds. 123: 71-73 (Dec. 1959). (175)

The characteristics, advantages, and disadvantages of the reactive dyes (Procion, Cibacron, Remazol) are summarized. 3 refs.

NEW WATER-SOLUBLE SULFUR DYES. L. Legradi. Magyar Textiltech. 10, No. 6: 233-235 (1958). Through BCIRA 39: 3872 (1959). (176)

If sulfur dyes are treated with sodium 2-nitro-1-chloro-4-sulfonate and ethylene chlorohydrin, they become water soluble and suitable for the coloring of wool and polyamides; they become insoluble again after adsorption on the fiber.

STUDIES ON THE ABSORPTION SPECTRA OF DYES. PART 7. ON THE DEFORMATION OF THE ABSORPTION SPECTRA OF SOME DYES IN PVA FILMS DUE TO DRY HEATING. Y. Ishii. J. Soc. Textile Cellulose Inds. Japan 15, No. 7: 582-588 (1959). In Japanese (English summary). Through BCIRA 39: 3877 (1959). (177)

DYEING OF COURTELLE ACRYLIC FIBER SLUBBING FOR JERSEY FABRICS. Courtaulds Ltd. Dyer 122: 621-623 (Nov. 6, 1959). (178)

Typical methods and recipes for dyeing Courtelle slubbing are given and fastness requirements are noted.

FIBER REACTIVE DYES IN PACKAGE DYEING. Textile Inds. 123: 74-76 (Dec. 1959). (179)

Evaluation of fiber reactive dyes for package dyeing of cotton yarns is summarized. For certain end uses these colors have found a ready acceptance. But in general their extension has been restricted by some weaknesses in qualities, and by their higher cost at high concentrations, to uses where brilliance and wetfastness properties would be particularly attractive.

TECHNIQUES FOR UNION DYEING BLENDS OF ZEFRAN AND COTTON WITH VAT DYES. R. L. Burgess (Dow Chem. Co.). Am. Dyestuff Reptr. 48: 19-23 (Nov. 30, 1959). (180)

Blends of Zefran and cotton can be package, jig, and continuously dyed with vat colors using 1-step, 1-bath procedures similar to 100% cotton. Photos, tables.

DYEING WITH CARBON BLACK. J. B. Donnet and D. Ferry. Teintex 24, No. 8: 533, 535-536, 539, 541 (1959). In French. Through BCIRA 39: 4069 (1959). (181)

Hitherto, carbon black has been used only as a pigment, but now, methods have been devised whereby it can be obtained in a form suitable for application by conventional dyeing techniques. Carboxyl groups are introduced into the carbon black by reaction with an oxidizing agent (e.g. boiling nitric acid), thereby giving a hydrophilic product which forms stable colloidal solutions. These solutions have been used to dye regenerated cellulose film and viscose rayon fiber. In the latter case, the dye is fixed only on the skin of the fiber, the particle size being too great to allow penetration into the core.

VINYLON DYEING WITH DIRECT DYES COMPARED WITH COTTON DYEING. K. Fujino, F. Fujimoto, and M. Kawaguchi. J. Soc. Textile Cellulose Inds. Japan 15, No. 7: 576-581 (1959). In Japanese (English summary). Through BCIRA 39: 3876 (1959). (182)

Dyeing behavior with 29 direct dyes was examined; the shape of the sorption isotherms for both fibers is essentially the same. The detailed results are discussed.

FAST DYEINGS ON WOOL/CELLULOSIC UNIONS. D. R. Lemin and J K. Collins. J. Soc. Dyers Colourists 75, No. 8: 421-429 (1959). Through BCIRA 39: 4072 (1959). (183)

By careful selection of dyes and dyeing methods, it is possible to apply reactive, onium, vat, and azoic dyes without causing significant fiber damage.

DYEING POLYAMIDE FIBERS WITH SULFUR AND INDOCARBON DYES. W. Titzka and C. Klopfstock. Textil-Praxis (English ed.) No. 3: 126-129 (Sept. 1959). (184)

The method described for the application of Immedial dyes (based on the principle of tannin mordants) gives excellent tone-in-tone dyeings on fabric blends from cotton and polyamide fibers. The dyeings exhibit high fastness properties. When using Indocarbon dyes according to a modified method (originally designed for pure cellulose fibers), dyeings with high light- and wet-fastnesses and very good dry and wet crocking fastness are obtained on Helanca yarns. These dyeings are stable during the thermofixing process.

DYEING GLOVE CURL CLOTH. Dyer 122: 657-658 (Nov. 20, 1959). (185)

Knitted pile fabric in the form of glove curl cloth is used as an embellishment on women's and children's gloves having soft leather palm pieces, and for various types of trimming. The fabric is in tubular form when it leaves the knitting machines, and the goods described have a knitted cotton foundation and pile yarns of worsted or worsted-mohair. Dyeing procedures for goods containing uncurled and curled yarns are given.

DYEING OF NATURAL SILK BY ACIDIC MORDANT DYES WITH SUBSEQUENT CHROMING. PART 2. S. K. Averbukh and M. R. Lepetkova. Tekhnol. Tekstil. Prom. No. 3 (10): 126-137 (1959). In Russian. Through BCIRA 39: 3875 (1959). (186)

Experiments confirm that methods of mordant dyeing applied to the dyeing of wool and Kapron can also be used for natural silk. During subsequent chroming of the silk dyed with acid mordant dyes, the hexavalent chromium which is absorbed in the fiber as anion of the bichromic acid is then reduced to the trivalent chromium and forms a lake with the dye on the fiber. Reduction of the pH of the bath favors the absorption of the hexavalent chromium by undyed and dyed silk. Maximum absorption takes place at pH 2.6-2.7 in presence of 2-3% of formic acid. Best fastness properties of the dyeings are obtained by chroming with potassium bichromate at a concentration of 70-80% based on pure dye and 29-33% of the technical dye. Absorption of the bichromic acid takes place at any temperature between 20-100° C, lake-formation only above 60° C.

DYEING OF TUFTED CARPETS. M. Peter, H. U. Schmidlin, and H. Stern. SVF Fachorgan Textilveredlung 14, No. 7: 407-425 (1959). In German. Through BCIRA 39: 3867 (1959). (187)

The dyeing possibilities of pile fabric from cellulosic, synthetic, wool and union fibers used for tufted carpets are reviewed. Other articles in this special edition dealing with dyeing and finishing problems include the following: Printing of tufted carpets from viscose rayon, by H. Werdenberg, p. 425-426; Tufted carpets, by J. R. Geigy AG, p. 426-430; Dyeing of needle-loom carpets, by C. W. Saalfrank and A. W. Spencer, p. 431-433; Dyeing of viscose tufted carpets with Procion dyes, by R. Bugmann, p. 434-439; Printing of viscose tufted fabrics, by R. Bugmann, p. 440-442; Dyeing of tufting carpets in the U.S.A., by E. Koller, p. 443-445; Dyeing of Acrilan carpet fibers, by Chemstrand Corp., p. 446-449; Tufted carpets on the European continent, p. 449-450; Soil-repellent finishing of tufted carpets with Ciba TC antisoiling agent, by H. Gilgien, p. 450-454; Back-finishing of tufted carpets with rubber-latex blends, by B. A. Wallace and E. J. P. Reynolds, p. 455-457; Latices and resins for back-finishing of tufted carpets, by R. R. Stapleton, p. 458-469; Back-finishing of tufted carpets, by Brit. Tufting Machy. Ltd, p. 469.

DYEING OF FABRICS UNDER THE INFLUENCE OF AN ELECTRIC CURRENT. W. E. Rostovzev and R. M. Tzachtenberg. Tekstil. Prom. No. 4: 55-58 (1959). In Russian. Textil-Praxis 14, No. 8: 807-810 (1959). In German. Through BCIRA 39: 3866 (1959). (188)

The article describes dyeing arrangements by which the fabric, saturated with dye liquor, is exposed to electrical current at a certain point, so that the absorbed liquor begins to boil. By this method it is possible to obtain an intensive dye penetration in a very short time.

STUDIES OF THE PROPERTIES OF PRINTING THICKENERS. F. I. Sadov and E. O. Vildt. Tekhnol. Tekstil. Prom. No. 3 (10): 121-125 (1959). In Russian. Through BCIRA 39: 3882 (1959). (189)

The study shows that the degree of penetration of the thickener depends on its internal structure; i.e. the lower its internal structural viscosity, the greater its penetration into the fabric. Thickener in which the structural viscosity is particularly high penetrates into the fabric much less but produces on the surface a much more intense color. The degree of penetration does not depend on its content of dry solids.

COLORED DISCHARGE PRINTS ON POLYAMIDE FABRICS WITH ANTHRASOL DYES. H. Fees. Melliand 40, No. 4: 268-274 (1959). (190)

By using Anthrasol dyes together with Decrolin soluble concentrate (zinc formaldehyde sulfate) colored discharges of good brilliance and sharp outlines are obtained on dyed polyamide fibers, if after a short steaming the prints are subjected to a treatment with a sulfuric acid nitrite solution. It is advisable to apply a rinsing operation before steaming.

DYEING POLYESTER FABRICS AND POLYESTER/CELLULOSE MIXED FABRICS WITH POLYESTREN VAT DYES. J. Müller. Melliand 40, No. 4: 256-268 (1959). (191)

Recommended procedures for thermosol dyeing and fastness properties of the Polyestren dyes are included.

ADSORPTION OF CAUSTIC SODA BY VEGETABLE FIBERS DURING NAPHTOL-AS DYEING. J. Oxé. Textil-Praxis (English ed.) No. 3: 137-139 (Sept. 1959). (192)

The alkali absorbability of cotton and bast fibers was studied by treating strands with varying amounts of alkali, squeezing and immersing them in acid, and determining the acid consumption by back titration. The results are presented graphically.

ON THE RATE-OF-DYEING EQUATION WITH RAISING OF TEMPERATURE IN THE FINITE DYEBATH. K. Tsuda. J. Soc. Textile Cellulose Inds. Japan 15, No. 8: 663-669 (1959). In Japanese (English summary). Through BCIRA 39: 4071 (1959). (193)

In practical dyeing the temperature of the dyebath is not always maintained constant for the whole period of dyeing but is raised slowly from a low to a high temperature and maintained at that temperature. Calculated curves based on Crank's solution of the diffusion equation for the infinite dyebath and Vickerstaff's hyperbola equation are compared with experimental results from the dyeing of nylon 6 yarn with disperse dyes.

ACCELERANT DYEING OF HYDROPHOBIC FIBERS: PRINCIPLES AND MECHANISMS. AATCC Piedmont Sect. Am. Dyestuff Reptr. 48: 23-34 (Nov. 2, 1959); 37-45 (Nov. 16, 1959). (194)

The use of accelerants (termed carriers) in dyeing of hydrophobic fibers, i.e., cellulose triacetate and polyester, with disperse dyes, is critically examined from the standpoint of mechanism and principles. A mechanism involving action of the carrier molecules within the fiber rather than in the dyebath is proposed. Guiding principles for the optimum use of carrier and a more objective insight into the mechanism are derived from basic experiments. Techniques required in the investigation of these new approaches are described. Diagrs, graphs, tables.

SQUEEGEE GRINDING IN SCREEN PRINTING. H. Grahl. Textil-Praxis (English ed.) No. 3: 131-133 (Sept. 1959). (195)

Four types of edge finishes applied to the printing squeegee are discussed and illustrated (angular, round, diagonal, and wedge) and reference is made to a new precision-cutting machine (E. Mertes & Co., Bad Kreuznach), by means of which any cutting angle between 0 and 90° can be adjusted. The machine has a cutting length of up to 1,250 mm.

STUDIES ON DYEING IN POLYMER SOLUTION. PART 1. DIRECT DYEING IN POLYMER SOLUTION (1). Y. Suda and T. Shirota. J. Soc. Textile Cellulose Inds. Japan 15, No. 8: 670-676 (1959). In Japanese (English summary). Through BCIRA 39: 4070 (1959). (196)

Sodium alginate and sodium carboxymethyl cellulose were used as polymer-electrolytes, Direct Scarlet B and Chyrsophenine G as dyes, and viscose rayon staple as fiber. It was found that cations dissociated from polymer-electrolyte influence direct dyeing and polymer-electrolyte adsorbs direct dye. Increased salt concentration decreases the former effect and increases the latter effect, and the reciprocal correlation between both effects causes a characteristic change of the equilibrium adsorption and the diffusion coefficient of the dye in the fiber.

JIGGER STUDIES. PART 1. WATERING OF ACETATE POULT FABRICS: CAUSE AND PREVENTION. E. France (Courtaulds Ltd). J. Soc. Dyers Colourists 75: 477-483 (Oct. 1959). (197)

The watering of secondary cellulose acetate taffetas and poults in jigger processing is shown to occur during the first wetting-out run. The phenomena observed are related to the properties of the fabric and the physics of the roll. Practical methods of producing fabrics free from watering are discussed, and one, entailing a slight modification of normal jigger processing, is recommended. Diagrs, tables, 3 refs.

AXIAL DYEING METHOD. E. Wilhelm. Textil-Praxis (English ed.) No. 3: 133-136 (Sept. 1959). (198)

The apparatus for forcing the dye liquor through a cheese in the axial direction is described and illustrated. The advantages of the method are cited. Photos.

VIGOUREUX PRINTING. H. Kittel. Melliand 40, No. 4: 274-278 (1959). (199)

Vigoureux printing procedures are discussed. Photos, diagrs.

HOW TO FORESTALL CROCKING. M. Mackay. Textile World 109: 102-103 (Dec. 1959). (200)

Crocking of printed or dyed goods can be reduced considerably if certain precautions are taken. The following are suggested: (1) complete removal of all sizing prior to dyeing or printing; (2) deep engraving; (3) wetting-out agents; (4) wet or dry crush rollers; (5) proper aging; (6) dye selection; (7) incorporation of resin in emulsions.

Mechanical processes D3

MANGLE AS A MACHINE. E. Moss (Shirley Inst.). J. Textile Inst. 50: P654-P672 (Nov. 1959). (201)

The effects of temperature, cloth speed, load, bowl diameter, and bowl material in mangling are first considered in relation to mangle design. Methods of testing the performance of mangles are described. The chief factor on which nip uniformity depends is deflection of the bowls under load, and ways of correcting or avoiding this are considered in detail. The requirements of mangles for water removal and for padding, and the extent to which existing and new designs of mangle meet these requirements, are discussed. Diagrs, graphs, tables, 6 refs.

Drying, setting, conditioning D4

FACTORS AFFECTING THE DRYING OF APPAREL FABRICS. PART 3. FINISHING AGENTS. R. Steele (Rohm & Haas Co.). Textile Research J. 29: 960-966 (Dec. 1959). (202)

The hanging strip water gradient determination and its interpretation on the basis of a capillary bundle model have been applied to a study of the effect of finishing agents on the water-holding capacity of cotton print-cloth. Water repellents, cross-linking reactive resins, and surface resins all reduce the water capacity to varying degrees and thereby should make them easier to dry. However, the effect of water repellents is negligible if the fabric is wet out with a surface active agent or by mechanical action, both of which are normally met with in laundering. The reductions in capacity produced by reactive or surface resins are not affected by these factors. Graphs, tables, 5 refs.

DRY WEIGHT OF WOOL. I. C. Watt, R. H. Kennett, and J. F. P. James (C.S.I.R.O. Wool Research Labs.). Textile Research J. 29: 975-981 (Dec. 1959). (203)

A study has been made of the drying of wool in vacuo. The time required to reach the equilibrium weight decreases with increasing temperature of drying, and the equilibrium weight decreases with increasing temperature up to 140° C. The equilibrium weight obtained in vacuo is less than the weight obtained in air under the same conditions. The absolute dry weight of a wool sample is defined as that weight obtained on heating the sample in vacuo to 140° C for at least 10 min. The activation energy of drying increased markedly at low regains. From comparison with partially acetylated wool it was concluded that drying wool at low regains involves the removal of water from hydrophilic sites. Graphs, 13 refs.

DRYING OF A MASS OF HYGROSCOPIC FIBERS BY FORCED CONVECTION OF AIR: A NOTE ON SOME PHYSICAL ASPECTS. J. G. Downes and G. B. McMahon (C.S.I.R.O. Wool Research Labs.). Textile Research J. 29: 1006-1010 (Dec. 1959). (204)

It is pointed out that, in drying of a uniform mass of fibers by forced convective air flow through the mass, a drying front proceeds through the mass in the same direction as, but much more slowly than, the air flow. Therefore, if uniform drying is to be obtained, the process must continue until the front has emerged from the downstream face of the mass of fibers; air of appropriate relative humidity must be used to leave the fibers at the desired regain; and reversal of air-flow direction is undesirable on grounds of efficiency. Calculations have been made of the capacity of air to remove water from a mass of wool fibers, the mass being left at given values of regain (4, 8, 12, and 16%). It is found that, except for the case of 4% regain, the capacity for water removal depends very little on the initial temperature of the air (in the range 30°-110° C). Graphs, 13 refs.

CAUSE OF FAULTS, STAINS, AND DEFECTS FOUND IN DYEING, PRINTING, AND FINISHING. THEIR DETECTION: PRACTICAL MEANS OF AVOIDING AND CORRECTING THEM. P. Colomb. Teintex 24, No. 8: 541-542, 545, 547-548 (1959). In French. Through BCIRA 39: 4068 (1959). (205)

Faults arising during the heat-setting of manmade fiber fabrics, particularly those made from polyamide fibers, are discussed.

CHAINLESS DRIVE HANK DRYER. Fleissner Ltd. Skinner's Silk & Rayon Record 33: 1081 (Nov. 1959). (206)

In the Fleissner dryer the rods carrying the hanks enter the unit on a conveyor belt, are propelled onto one of two sets of guide rails by cams, and are then pushed further forward through the drying chamber by the rods following. Diagr.

RADIANT ENERGY (INFRARED) TUBES MADE OF QUARTZ FOR DRYING. H. Gertig. Melliand 40, No. 4: 294 (1959). (207)

The demand for high watt lamps of small size for drying by radiant heat requires the use of quartz rather than glass. Photos.

TENSIONLESS DRYING ON CYLINDER DRYERS. E. Löhmer. Melliand 40, No. 4: 282-286 (1959). (208)

The dryer system discussed combines cylinder drying with drying by means of superheated steam, with considerable savings in drying time and cost. Photos, diagrs.

TWIST SETTING SPUN NYLON CARPET YARNS. M. Santymire (E. I. du Pont de Nemours & Co.). Modern Textiles Mag. 40: 65-68 (Dec. 1959). (209)

An outline of the recommended procedure for twist-setting nylon carpet yarns with either hot water or steam is given. Photos, graph, table.

INFLUENCE OF HEAT SETTING ON THE WOOL IN WOOL/POLYESTER FABRICS. W. Heydeck. Melliand 40, No. 4: 286-290 (1959). (210)

From the tests described, it is concluded that the heat setting of wool/polyester fabrics does not cause any deleterious change of the wool, provided the fabric is of a light quality of the tropical type and the treatment is carried out for about 30 sec at 170-180° C. Tables.

TESTING AND MEASUREMENT E

Fibers E1

MEASURE OF COTTON FIBER DEVELOPMENT. L. E. Hessler (Textile Research Labs., Texas Technol. Coll.). Textile Research J. 29: 858-862 (Nov. 1959). (211)

Cut swollen cotton fibers can be used to study cotton fiber development and determine cotton maturity. The method can be used to identify biological and chemical damage in a raw cotton sample. Cotton may be distinguished from other natural and synthetic fibers in mixtures. Photomicrographs, graph, table, 7 refs.

METHOD FOR THE QUANTITATIVE CHEMICAL ANALYSIS OF TERNARY MIXTURES OF PROTEIN FIBERS, POLYAMIDES, AND CERTAIN OTHER FIBERS. J. Textile Inst. 50: P692-P695 (Nov. 1959). (212)

Tentative textile standard no. 56. The method is applicable, after the removal of added matter, to 3-component mixtures of: (1) natural or regenerated protein fibers (other than silk); (2) polyamide (nylon 6 or nylon 6.6 fibers); and (3) raw cotton, wet-processed cotton, regenerated cellulose, or polyester fibers.

THE COTTONOMETER, A NEW GERMAN FIBER LENGTH TESTER. M. Hoffmann. Textil-Praxis (English ed.) No. 3: 109-112 (Sept. 1959). (213)

The construction and mechanism of the photoelectric device for determining staple length and the fiber length distribution in cotton samples are described. The 200-mg sample is prepared in the same manner as described previously (abstr. 4229/58) and scanned on the Cottonometer at 2-mm distances; the scanning is effected within 1 min. The values obtained are then transferred on to graph paper, giving the staple diagram after connection of all the points. The results are comparable with a Johannsen-Zweigle diagram.

MEASUREMENT OF FIBER DIAMETER VARIATION BY OPTICAL DIFFRACTION. W. J. Onions and B. Ellingham. Brit. J. Appl. Phys. 10, No. 7: 328-332 (1959). Through BCIRA 39: 4092 (1959). (214)

A theory is developed relating the intensity of light diffracted at any given angle by a parallel array of opaque fibers of unequal diameters with the mean diameter and the coefficient of variation of fiber diameter. The ratio of the intensities of the first minimum and the first maximum is shown to depend on the coefficient of variation of fiber diameter. This provides a method for measuring fiber diameter variation.

TIME DEPENDENCE OF MECHANICAL BREAKDOWN IN BUNDLES OF FIBERS. PART 3. POWER LAW BREAKDOWN RULE. B. D. Coleman. Trans. Soc. Rheol. 2: 195-218 (1958). Through BCIRA 39: 4094 (1959). (215)

The problem of calculating relationships between the strength of a bundle and the strength of its constituent filaments is discussed. Detailed calculations are made for the case in which the filaments are drawn from a first-order ensemble with the special property that the average lifetime of the filaments, when tested separately under static loads, varies as a power of the applied stress. In these circumstances it is possible to derive general results that are valid whatever the time dependence of the total load. The conditions under which the strength of a bundle decreases with increasing number of filaments are examined.

SPECIAL CASE OF THE SUPERPOSITION OF CRYSTAL PLATES BETWEEN CROSSED POLARS AND ITS BEARING ON THE MICROSCOPY OF CELLULOSIC FIBERS. N. H. Hartshorne. Nature 184: 179-181 (July 18, 1959). Through BCIRA 39: 4093 (1959). (216)

A mathematical treatment is given for the intensity of light transmitted through two superposed and differently orientated transparent crystal plates between crossed polars, the incident monochromatic light entering the system normally. Particular attention is paid to the special case in which the phase difference δ produced by each plate is 180° (or (n x 360) + 180°). The discussion has a bearing on the polarization microscopy of cellulosic fibers, the spiral wall structure of which causes them to behave optically in a similar way to systems of superposed plates.

ROUTINE METHODS FOR DETERMINING QUALITY IN MERINO WOOL. P. L. le Roux (Univ. of Orange Free State, South Africa). (Letter to the editor). Nature 184: 917-918 (Sept. 19, 1959). (217)

Routine determinations of the solubility of wools in alkali and urea-bisulfite solutions are suggested as a new approach to wool quality. 11 refs.

DETERMINATION OF INDIVIDUAL FIBER VALUES ON THE BASIS OF COLLECTIVE STRESS-STRAIN CURVES. G. Brockel. Textil-Praxis 14, No. 8: 767-771 (1959). In German. Through BCIRA 39: 3914 (1959). (218)

The author has developed a stress-strain tester by means of which a fiber tuft can be broken. In the present article he describes an approximation method for the evaluation of collective stress-strain curves.

ANALYSIS OF TERNARY MIXTURES CONTAINING WOOL, NYLON 6.6, AND VISCOSE RAYON. F. F. Elsworth. J. Textile Inst. 50: P695-P696 (Nov. 1959). (219)

ACCELERATED ANALYSIS OF COTTON/VISCOSE RAYON BLENDS WITH FORMIC ACID/ZINC CHLORIDE REAGENT. F. Brunello and G. Rossi. Tinctoria 56, No. 7: 290-291 (1959). In Italian. Through BCIRA 39: 3917 (1959). (220)

An investigation was carried out into the possibility of accelerating the Schlütter-Marschal method with formic acid/zinc chloride. It was found that, by working at 55° C rather than at 40° C, it is possible to reduce the time from 2-1/2 hr to 1 hr. The method is described in detail; a correction factor of 0.965 is applied to account for the probable formation of small amounts of formylcellulose.

HYDROXYLYSINE IN WOOL. H. Kersten and L. Zürn (Deutsches Wollforschungsinst. an der Technischen Hochschule, Aachen). (Letter to the editor). Nature 184: 1490-1491 (Nov. 7, 1959). (221)

Hydroxylysine has been identified and estimated in wool by use of paper chromatograms, by high-voltage paper electrophoresis, and by use of the modified Moore and Stein technique. 9 refs.

ELONGATION CHARACTERISTIC AS EVIDENCE OF MICROBIOLOGICAL DAMAGE OF WOOL. J. Nitschke. Textil-Praxis 14, No. 8: 813-819 (1959). In German. Through BCIRA 39: 3926 (1959). (222)

The chief methods for detecting microbiological damage on wool are discussed. The elongation properties of chemically treated and untreated wool have been evaluated.

PREPARATION TECHNIQUES FOR STUDYING VOIDS IN CELLULOSE FIBERS FROM VISCOSE. B. J. Spit. J. Textile Inst. 50: T553-T557 (Oct. 1959). (223)

An outstanding feature of some viscose rayon fibers is the appearance of voids in their transverse and longitudinal sections. As many of these voids are of the order of 0.2 μ in diameter and smaller, it is necessary to use an electron microscope to investigate them. Two different techniques are described: ultra-thin sectioning with embedding in Araldite, and replication, the replicas being made of thick transverse and longitudinal sections. Photomicrographs, 9 refs.

Yarns E2

GRAPH AND SLIDE RULE FOR CONVERSION OF COUNTS IN OLD SYSTEMS INTO TEX. N. F. Roberts and E. Sebestyen (C. S. I. R. O. Wool Research Labs.). (Letter to the editor). J. Textile Inst. 50: P685-P687 (Nov. 1959). (224)

MEASUREMENT AND EVALUATION OF YARN IRREGULARITIES IN INDUSTRIAL PRACTICE. PART 1. S. Kleinheins. Textil-Praxis 14, No. 8: 781-785 (1959). In German. Through BCIRA 39: 3928 (1959). (225)

In the first articles of his series, the author gives a survey of the appliances used in determining yarn irregularity. He also explains the evaluation of irregularity charts and the methods applied in measuring regularity.

RECORDING OF YARN FRICTION OF A RUNNING THREAD. M. W. Pascoe (Brit. Nylon Spinners Ltd). (Letter to the editor). J. Textile Inst. 50: T653 (Nov. 1959). (226)

A continuous recording device for use with the Shirley friction tester is described. Diagr.

FREE DIAMETER AND SPECIFIC VOLUME OF TEXTILE YARNS. B. E. van Issum and N. H. Chamberlain (Leeds Univ.). J. Textile Inst. 50: T599-T623 (Nov. 1959). (227)

A new method is described, based on the use of photographic integration, for the determination of the "free" (i.e. unconstrained) diameter of textile yarns. The results obtained by applying this method to a comprehensive range of yarns are used to obtain relationships between free diameter and yarn count, and the effect of yarn twist on such relationships is examined. Photos, diagrs, graph, tables, 12 refs.

Fabrics E3

BETTER BREAKING OF SMOOTH, HEAVY FABRICS IN TENSILE STRENGTH TESTERS. H. A. Mereness (Inst. Textile Technol.). Textile Inds. 123: 80-82 (Dec. 1959). (228)

To prevent jaw slippage and jaw breaks in testing heavy fabrics by both the raveled strip and grab methods, a set of capstan clamps is used. In this type of clamp the greater the stress applied to the specimen the tighter the specimen is held in the clamps. Also, because of a certain amount of friction between the specimen and the curved portion of the jaw, there are no jaw breaks when using the raveled strip method and only a small number when using the grab method. Comparative values with Instron flat clamps and capstan clamps are tabulated. Tables, 3 refs.

DETERMINATION OF THE AIR PERMEABILITY OF FABRICS. J. Lord (Shirley Inst.). J. Textile Inst. 50: T569-T582 (Oct. 1959). (229)

An instrument for measuring the air permeability of fabrics and its use are described. Reproducibility of results is good. The flow of air is proportional to pressure with close fabrics but, with more open fabrics, flow is more nearly linearly related to the square root of the pressure. Flow is proportional to area of specimen within the limits studied. The resistances to air flow of multilayers of fabric are additive. Diagrs, graphs, tables, 13 refs.

APPARATUS FOR MEASURING FABRIC IRREGULARITY. PART 2. T. Sawaki and K. Horie. J. Textile Machy. Soc. Japan 12, No. 7: 24-27 (1959). In Japanese (English summary). Through BCIRA 39: 3943 (1959). (230)

The apparatus already described (abstr. 3037/59) has been used to measure fabric density and reed irregularity.

SPECTROPHOTOMETRIC MEASUREMENT OF COLOR IN WOOL FABRICS. F. G. Lennox (C.S.I.R.O. Wool Research Labs.). Textile Research J. 29: 906-912 (Nov. 1959). (231)

A method is described for measuring the differential absorption spectra of pale-colored fine-wool fabrics in the visible and ultraviolet regions. A strip of the fabric is immersed in a liquid having a refractive index close to that of wool and compared in an ultraviolet spectrophotometer with a similarly immersed uncolored or bleached strip of the same fabric. The method is applied to the measurement of the absorption spectra of normal unbleached wool fabrics and to fabrics which have been yellowed either by heating at 97° C in an aqueous buffer solution at pH 8 or by exposure to ultraviolet irradiation. Fabrics which have been dyed or treated with reagents producing colored derivatives of particular amino acid residues in the wool proteins have also been tested. Sizing and finishing agents in the fabric which absorb in the visible or ultraviolet regions are detected by the method. When wool is yellowed by heating or exposing to ultraviolet irradiation, its absorption increases far more in the ultraviolet region of the spectrum, especially at 3100-3300 Å, than in the visible region above 3900 Å. Graphs, table, 6 refs.

NEW REPLICA TECHNIQUE FOR THE STUDY OF FABRICS AND OTHER SURFACES. W. R. Berry (Am. Enka Corp.). Textile Research J. 29: 912-917 (Nov. 1959). (232)

The Silastic replica technique provides a new, unique, and simplified means for the replication and examination of fabric streaks, pile fabrics, and other surfaces. The basic technique is extremely simple and requires no special equipment. It depends on the properties of the silicone rubber, Silastic (Dow Corning Corp.). This material, received as a liquid, sets up at room temperature, upon the addition of a catalyst, to a smooth, rubbery, fine textured, nontacky film in approximately 30 min. The Silastic produces a replica of the sample fabric that will not only automatically classify the streak, but will also permit microscopical examination and photomicrography of the streak at a relatively high magnification. This material has also proved useful for replicating surfaces of other materials such as godets, draw pins, etc., which are inaccessible for microscopical examination of their surfaces. Photomicrographs, 4 refs.

MEASUREMENT OF PILLING. Y. Miura. J. Textile Machy. Soc. Japan 12, No. 7: 18-23 (1959). In Japanese (English summary). Through BCIRA 39: 3949 (1959). (233)

Of the existing methods, counting and weighing of pills are inaccurate and comparison with a standard is subject to personal errors. The use of apparatus equipped with photocells has been examined. One instrument developed measures the amount of light passing through the sample (tried for thin and faintly-colored samples), the other has a phototransistor that receives light parallel to the cloth surface and its electrical output shows the inverse relationship to the increase of pill counting.

TEAR STRENGTH OF COTTON FABRICS. PART 2. F. Nestelberger. Textil-Praxis 14, No. 8: 798-803 (1959). In German. Through BCIRA 39: 3954 (1959). (234)

The author discusses dry and wet tensile strength of fabrics, and examples are quoted to show how tear resistance is determined in industrial practice.

DETERMINATION OF SEAM SLIPPAGE OF WOVEN FABRICS. J. Textile Inst. 50: P688-P691 (Nov. 1959). (235)

Tentative textile standard no. 55.

MICROSCOPICAL-CHEMICAL DETERMINATION OF CHEMICAL COTTON TENDERING DURING HYPOCHLORITE BLEACHING. M. Zerdik. Tekstil 8, No. 7: 511-517 (1959). In Serbocroat. Through BCIRA 39: 3918 (1959). (236)

Quantitative evaluation of swelling phenomena of cotton fibers in sodium zincate solution is described, the swelling is similar to that found in fibers treated with 15% sodium hydroxide solution. The method is suitable for rapid identification and quantitative determination of damage (particularly local) in hypochlorite-bleached cotton.

Other E4

DEPENDENCE OF COMMERCIAL DETERMINATIONS OF WOOL REGAIN ON CLIMATIC CONDITIONS. N. F. Roberts (C.S.I.R.O. Wool Research Labs.). J. Textile Inst. 50: P678-P684 (Nov. 1959). (237)

It is customary to determine the regain of wool for commercial purposes by finding the loss in weight when the wool is dried to a constant weight in air heated to 103-107° C. No account is taken of the moisture content of the air, and the question arises as to whether variation in climatic conditions could lead to appreciable differences between determinations carried out in different parts of the world, or on different occasions in the one locality, of the regain of wool of the same water content. A summary of published information relevant to the problem is given in this paper, and an attempt is made to estimate the magnitude of the errors that could occur. Graphs, 8 refs.

SEPARATION, ESTIMATION, ORIENTATION, AND ULTRAVIOLET SPECTRA OF ISOMERIC AZO COMPOUNDS FORMED BY DIAZO COUPLING TO 1-NAPHTHYLAMINE AND ITS DERIVATIVES. E. R. Ward, B. D. Pearson, and P. R. Wells (Coll. Technol. & Commerce, Leicester). J. Soc. Dyers Colourists 75: 484-486 (Oct. 1959). (238)

Isomeric 2- and 4-azo-1-naphthylamines, formed by diazo coupling to 1-naphthylamine and certain derivatives, are readily separated and estimated by chromatography on alumina columns. Pronounced differences in the ultraviolet spectra of such compounds provide a ready means of orientation. The analytical methods are applicable to very small quantities of material. Ultraviolet spectra for a number of isomeric pairs are recorded, and the general characteristics of such spectra reported. Graphs, tables, 10 refs.

QUALITATIVE TEST FOR DISTINGUISHING TRIS(1-AZIRIDINYL)-PHOSPHINE OXIDE (APO) AND TETRAKIS(HYDROXYMETHYL) PHOSPHONIUM CHLORIDE. T. D. Miles and A. C. Delasanta (Quartermaster Research & Eng. Command). Anal. Chem. 31: 2051-2052 (Dec. 1959). (239)

An analytical method was developed to distinguish APO and THPC when present either in typical finishing bath formulations or on treated fabric. The test, a horizontal paper chromatographic method, consists of spotting the paper with a sample of the compound, the bath formulation, or the acid extract from treated fabric. Distinguishing colors are developed with ammonium molybdate. 5 refs.

MILL MANAGEMENT F

POINTS TO BE CONSIDERED BEFORE MAKING CAPITAL INVESTMENT. G. I. Kimball (Terrell Mach. Co.). Am. Textile Reptr. 73: 27, 52-53 (Dec. 10, 1959). (240)

The determining factors necessary in considering machinery investments include: direct labor, indirect labor and supplies, repairs and maintenance, fringe benefits, depreciation, interest, income taxes, and cash produced. The evaluation of these factors is discussed.

COMPUTERS AND THE TEXTILE INDUSTRY. E. Ford. Fibres 20: 351-354 (Nov. 1959). (241)

The possible advantages of the electronic computer as an aid to management are discussed. The author emphasizes the need for careful analysis of proposed applications prior to installation, and points out that the computer is primarily a decision making machine rather than a mere mathematical aid.

Industrial engineering F1

MULTI-MACHINE ASSIGNMENTS. PART 3. TIME STUDY. T. F. O'Connor. Modern Textiles Mag. 40: 54, 60, 83 (Dec. 1959). (242)

The use of time study techniques in determining unit time ratings (the average time required to perform an operation) is explained.

SOME ASPECTS OF THE ORGANIZATION OF DYEING AND FINISHING INDUSTRIES. J. Cegarra Sanchez. Ingenieria Textil 24, No. 138: 188-213 (May/June 1959). In Spanish. Through BCIRA 39: 4008 (1959). (243)

COST FACTORS TO CONSIDER IN NEW EQUIPMENT PURCHASES. G. I. Kimball (Terrell Mach. Co.). Textile Bull. 85: 50-52, 55 (Dec. 1959). (244)

The author outlines the basic factors which must be considered in determining a good machinery investment as given in the Machinery & Allied Products Institute method of utilizing capital funds.

INTEGRATED ORGANIZATION IS KEY TO MAXIMUM CONTROLLED PROFITS. R. M. Ashner (Werner Textile Consultants). Can. Textile J. 76: 61-65 (Nov. 13, 1959). (245)

The basic principles on which an integrated organization operates are described and illustrated.

MEASUREMENT AND CONTROL OF QUALITY. L. H. C. Tippett. Fibres 20: 348-350, 354-355 (Nov. 1959). (246)

Procedures used for process control and for quality control on end products are summarized.

Plant and equipment F2

DUST COLLECTING AND CONVEYING. Sturtevant Eng. Co. Ltd. Fibres 20: 337-338 (Nov. 1959). (247)

The design and installation of an efficient dust collecting system are described. Photos.

HEAT AND POWER EFFICIENCY IN TEXTILE MILLS. R. A. Johnson. Textile Merc. 141: 645-650 (Nov. 13, 1959). (248)

The importance of temperature and humidity control, insulation, and heat recovery in achieving optimum savings are discussed. Graphs.

ELECTRONIC AIR FILTER IN THE GERMAN TEXTILE INDUSTRY. W. H. P. Jessnitz. Can. Textile J. 76: 41-46 (Nov. 27, 1959). (249)

The article describes results of experiences in checking the existing space charge and electric potential of the inside air of textile mills. The results have shown that there are 500 to 20,000 volts per meter space charge. Electronic air cleaning will effect substantial savings in reduced heating costs, elimination of package soiling, reduced ends-down, less lint through forestalling its creation at source, smoother operation, and better working conditions. Photos, diagr, graphs.

TEXTILE MILL MAINTENANCE. PART 2. F. H. Slade. Textile Mfr. 85: 437-441 (Oct. 1959). (250)

The advisability of critically examining existing operational techniques and equipment in order to reduce maintenance costs and efforts is discussed, and maintenance procedures for boilers are described. Photos, diagrs, graph.

SOUNDPROOFING IN THE TEXTILE INDUSTRY. H. Schmidt. Melliand 40, No. 4: 296-302 (1959). (251)

Following a discussion of the noise level in various sections of a textile mill, possible methods of noise reduction are described. Photos, diagrs, graphs.

IMPREGNATED CARBON MATERIALS IN THE TEXTILE INDUSTRY. R. R. Voigt. Melliand 40, No. 4: 302-304 (1959). (252)

The use of artificial coal and electro-graphite in the construction of textile machinery and equipment, and as a constructional material in modern chemical industrial plant, is discussed. The chemical and mechanical properties of such metal-impregnated carbon materials and their advantages are cited. Tables.

SCIENCES G

Chemistry G1

EVIDENCE FOR A HYDRATE OF CELLULOSE FROM STUDIES OF ITS SURFACE PROPERTIES. J. M. Joubert, G. J. R. Krige, and K. Borgin (Inst. Forestry & Wood Technol., Univ. of Stellenbosch). (Letter to the editor). Nature 184: 1561-1562 (Nov. 14, 1959). (253)

FUNDAMENTALS OF ADHESION FROM MOLECULAR FORCES IN CELLULOSE. A. H. Nissan. Tappi 42: 928-933 (Dec. 1959). (254)

This study consists of 5 steps: (1) a brief review of cohesive forces and of cellulose structure is made, (2) a simplified model is then postulated, (3) a quantitative though approximate law of strength is formulated, (4) the theoretical relationship is checked against observations, (5) the model is refined in the light of observations. Graphs, 13 refs.

ABSORPTION OF CATIONIC SURFACTANTS BY CELLULOSIC MATERIALS. PART 1. UPTAKE OF CATION AND ANION BY A VARIETY OF SUBSTRATES. F. H. Sexsmith and H. J. White, Jr. (Princeton Univ.). J. Colloid Sci. 14: 598-618 (Dec. 1959). (255)

The interaction between cationic surfactants and cellulosic fibers has been studied. Most of the work involves cetyltrimethylammonium bromide (CTAB) and four substrates: kiered cotton, a medium-high-tenacity viscose rayon, a viscose rayon monofil, and oxycellulose. Absorption isotherms for the cation and anion of the surfactant were measured and some attention was given to rates of absorption and to the effects of temperature, added electrolyte, and solubilized dyes. References.

ABSORPTION OF CATIONIC SURFACTANTS BY CELLULOSIC MATERIALS. PART 2. EFFECTS OF ESTERIFICATION OF THE CARBOXYL GROUPS IN THE CELLULOSIC SUBSTRATES. Y. Gotshal, L. Rebenfeld, and H. J. White, Jr. (Textile Research Inst.). J. Colloid Sci. 14: 619-629 (Dec. 1959). (256)

ABSORPTION OF CATIONIC SURFACTANTS BY CELLULOSIC MATERIALS. PART 3. A THEORETICAL MODEL FOR THE ABSORPTION PROCESS AND A DISCUSSION OF MAXIMA IN ABSORPTION ISOTHERMS FOR SURFACTANTS. F. H. Sexsmith and H. J. White, Jr. (Princeton Univ.). J. Colloid Sci. 14: 630-639 (Dec. 1959). (257)

INFLUENCE OF IMPURITIES ON THE PYROLYSIS OF POLYAMIDES. S. Straus and L. A. Wall. J. Research Nat. Bur. Standards 63A: 269-273 (Nov./Dec. 1959). (258)

DYNAMIC MECHANICAL PROPERTIES OF NYLONS. T. Kawaguchi (Toyo Rayon Co. Ltd). J. Appl. Polymer Sci. 2: 56-61 (July/Aug. 1959). (259)

A study of the dynamic mechanical properties of a series of polyamide polymers and some related polymers was made over a wide temperature range at about 100 cycles/sec by means of a vibrating reed method. Graphs, 6 refs.

TEMPERATURE DEPENDENCE OF FIBER BIREFRINGENCE. PART 1. TEMPERATURE-BIREFRINGENCE CURVES OF FIBERS. S. Okuaki, R. Onooka, and S. Hasegawa. Bull. Textile Research Inst. (Japan) No. 49: 83-89 (1959). In Japanese (English summary). Through BCIRA 39: 3913 (1959). (260)

Fibers samples were heated in a cell attached to the stage of a polarizing microscope; birefringence was measured with Berek's compensator and temperature with a copper-constant thermocouple. Curves are plotted for triacetate, acetate, high-tenacity rayon, Dynel, Orlon, Kanekalon, Terylene, nylon, and other fibers; second-order transition points were determined.

CHEMICAL STRUCTURE AND STABILITY RELATIONSHIPS IN POLYMERS. B. G. Achhammer, M. Tryon, and G. M. Kline. Modern Plastics 37: 131-148, 216-227 (Dec. 1959). (261)

A review of our present knowledge of polymer degradation in terms of a number of environmental parameters, including thermal, ultraviolet, and nuclear radiant energy, oxygen, water, and various climatic environments, is presented in this paper. Graphs, tables, 109 refs.

POLYURETHANE FOAMS. S. H. Morrell. Research 12: 412-416 (Oct./Nov. 1959). (262)

Following a discussion of the chemistry and technology of polyurethane foams, the author describes the properties of some typical members and also their applications. Although for many purposes the polyetherurethane foams are preferable, polyesterurethane foams show advantages, particularly where a large absorption of energy is required. 5 refs.

SYNTHETIC DETERGENTS FOR HOME LAUNDERING. Consumer Bull. 43: 25-26 (Jan. 1960). (263)

Six low sudsing and high sudsing detergents are evaluated and rated for home laundering.

SILICATES IN DETERGENTS. PARTS 1 AND 2. W. L. Schleyer (Phila. Quartz Co.). Soap Chem. Specialties 35: 51-54, 110 (Nov. 1959); 66-67, 146 (Dec. 1959). (264)

Silicates have very good stability in cleaning baths during prolonged use at elevated temperatures. They have excellent buffering capacity. They are low in cost. They provide protection against the corrosive effects of phosphates and synthetics. They do not sequester water hardness by forming soluble complexes with calcium and magnesium. However, they do sequester iron and thus prevent rust staining better than some other alkalies. 25 refs.

BUILDING LIQUID DETERGENTS. J. R. Van Wazer and R. L. Liss (Monsanto Chem. Co.). Soap Chem. Specialties 35: 59-61, 144-145 (Dec. 1959). (265)

Polyphosphate builders and their action in improving the detergency of liquid detergents. Photos, graphs, tables, 4 refs.

NATURE OF TENACIOUSLY BOUND SOIL ON COTTON. W. C. Powe (Whirlpool Corp.). Textile Research J. 29: 879-884 (Nov. 1959). (266)

A serious problem in drycleaning and laundering is the progressive deterioration in the appearance of fabrics caused by the gradual accumulation of unremoved and redeposited soil. Electron micrographs of natural soil in situ were taken to determine the identity and particle size of this material. These electron micrographs suggest that clay minerals 0.02-1 μ in diameter are the major particulate material causing soil build-up on cotton fibers. Properties of clay minerals which contribute to their forming strong bonds with cotton fibers are discussed. Photomicrographs, 10 refs.

MOISTURE RELATIONS OF CELLULOSE. PART 5. STABILIZATION OF CELLULOSE AND THE VARIATION WITH TEMPERATURE OF ITS HEAT OF WETTING IN WATER. M. Wahba and K. Aziz (Univ. of Cairo). J. Textile Inst. 50: T558-T568 (Oct. 1959). (267)

In an earlier paper (abstr. 574/59) it was shown that the stabilization of cellulose, by repeated wetting and drying, causes the water sorption isotherms to be displaced to an extent dependent on the temperature. Since the heat of wetting is a measure of the energetics of the adsorption process, the effect of the stabilization of cellulose on its heat of wetting in water at different temperatures was investigated so as to correlate the results with the behavior of the adsorption isotherms. Diagr, graphs, table, 16 refs.

RHEOLOGICAL INTERPRETATION OF THE HOTTENROTH INDEX METHOD FOR VISCOSE. S. Onogi and Y. Hayashi (Dept. Textile Chem., Kyoto Univ.). Textile Research J. 29: 873-879 (Nov. 1959). (268)

This paper is concerned with the rheological behavior of viscose with salt solutions added, especially with thixotropy observed in viscose with ammonium chloride solution added, the purpose being to put a rheological interpretation on the Hottenroth index method and to contribute to a plan of a new automatic tester for determining the degree of ripeness of viscose. Diagrs, graphs, 6 refs.

Biology G3

THE PLANT CELL-WALL. P. A. Roelofsen. Gebrüder Borntraeger, Berlin. 1959. 335 p., 68 plates. Encyclopedia of plant anatomy, v. 3, pt. 4. In English. (269)

Part 1. Cell-wall constituents (cellulose, chitin, hemicelluloses, polyoses soluble in water, polyuronides, lignin, cell-wall substances of lipid character, other cell-wall substances). Part 2. Cell-wall structure (methods of cell-wall investigation, primary cell-wall of the anthophytes, structure of the secondary wall in the anthophytes, structure of the wall of some algae and fungi). Bibliography, p. 306-319. The structure of the cotton fiber and its study by means of microscopy is discussed on p. 227-242.

MISCELLANY H

CONSUMERS' CONCEPTS OF FABRIC: A MARKETING STUDY OF THE RELATIVE IMPORTANCE OF FABRIC CHARACTERISTICS IN THE SELECTION OF WOMEN'S CLOTHING. F. L. Nolan and D. B. Levine. U. S. Agri. Mktg. Serv., Washington 25, D. C. July 1959. 60 p. Mktg. research report no. 338. Available from Superintendent of Documents, Washington 25, D. C. 40¢. (270)

The data were collected in the city of York, Pa., in Dec. 1955 - Feb. 1956, from 2,133 homemakers in households containing both a husband and a wife.

LOWELL TECHNOLOGICAL INSTITUTE GRADUATE THESES 1946-1958. Lowell, Mass. Nov. 1958. 12 p. Bull. Ser. 62, No. 2. (271)

Theses from 1946 through 1958 are listed under the headings: chemistry, engineering, and textile manufacturing.

THIRD INTERNATIONAL TEXTILE MACHINERY EXHIBITION, MILAN. Textile Mfr. 85: 397-400 (Sept. 1959). Hosiery Times 32: 18-23, 85-87 (Oct. 1959). Dyer 122: 533-536 (Oct. 23, 1959). Am. Textile Reptr. 73: 29-31, 40 (Oct. 29, 1959); 41-44 (Dec. 17, 1959). Textile Inds. 123: 83-97 (Nov. 1959). Textile World 109: 51-67, 176 (Nov. 1959). Knitted Outerwear Times 27: 3, 24-25 (Nov. 2, 1959). Spinner u. Weber 77: 1263-1314 (Nov. 1959). Am. Dyestuff Reptr. 48: 121-122 (Dec. 14, 1959). Textile Recorder 77: 74-101 (Nov. 1959). Modern Textiles Mag. 40: 31-34, 46 (Nov. 1959). Hosiery Trade J. 66: 105-116 (Nov. 1959). (272)

TENTATIVE TEXTILE TERMS AND DEFINITIONS. J. Textile Inst. 50: P610-P623 (Oct. 1959); P697-P704 (Nov. 1959). (273)

PATENT CHECKLIST

U. S. patents may be obtained from the U. S. Patent Office, Washington 25, D. C., for 25¢ a copy. Photostatic copies of foreign patents are also available. Charges for these photostats are based on the number of pages in the patent.

FIBERS A

Manmade fibers A2

VISCOSE RAYON PRODUCTION. Am. Viscose Corp. BP 817 131, July 22, 1959. Through BCIRA 39: 4031 (1959). (274)

Smooth, non-crenulated viscose filaments, consisting entirely of skin, are obtained by adding to the viscose and/or the extrusion bath an alkylene oxide adduct of urea or biuret.

YARN PRODUCTION B

APPARATUS FOR CONVERTING BULK FILAMENT INTO STAPLE FIBER. K. L. Whitney (to Am. Viscose Corp.). USP 2 908 043, Oct. 13, 1959. (275)

STAPLE FIBER CRIMPING APPARATUS. K. L. Whitney (to Am. Viscose Corp.). USP 2 908 044, Oct. 13, 1959. (276)

For crimping a sheet of staple fibers and then condensing the crimped fibers into sliver.

COTTON FIBER SORTER SEPARATING FIBERS ACCORDING TO LENGTH. V. P. Moore and J V. Shepherd. USP 2 910 731, Nov. 3, 1959. (277)

FALSE TWIST CRIMPING APPARATUS HEAT SETTING DEVICE. R. S. Bley (to Beaunit Mills). USP 2 910 761, Nov. 3, 1959. (278)

STUFFER CRIMPER. A. Robinson and M. W. Alford (to Brit. Celanese Ltd). USP 2 914 810, Dec. 1, 1959. (279)

The strand is forcibly fed into a confined space in such a way that a uniform pressure is built up resulting in a greater uniformity in the degree of crimp.

CRIMPING GLASS FIBER STRANDS. G. Slayter and W. W. Drummond (to Owens-Corning Fiberglas Corp.). USP 2 914 835, Dec. 1, 1959. (280)

Opening, picking, fiber preparation B1

MACHINERY FOR OPENING, CLEANING, AND BLENDING FIBERS. W. A. Hunter (to T. M. M. (Research) Ltd). USP 2 911 684, Nov. 10, 1959. (281)

APPARATUS FOR PRODUCING UNIFORM PICKER LAPS J. J. Rieter & Cie AG. BP 816 295, July 8, 1959. Through BCIRA 39: 3839 (1959). (282)

Means for compensating the decline that often occurs in the weight per unit length of a roller-up lap towards the end of the lap. This difference, usually not more than 2%, is determined on a set of laps and the usual pedal-type feed regulator is fitted by trial with a compensating device that secures the necessary addition to the feed. The device causes the appropriate displacement of the pivot point to which the lever linkage of the feed speed regulating mechanism is articulated.

PICKER LAP FORMATION. R. M. Rochester (to Deering Milliken Research Corp.). USP 2 910 732, Nov. 3, 1959. (283)

Denser and more compact picker lap rolls than heretofore possible are obtained by applying sufficient moisture to the fibers to cause them to coalesce when they are subsequently subjected to heat prior to or during calendering.

LINT COTTON CLEANER. A. L. Vandergriff and D. W. Van Doorn (to Lummus Cotton Gin Co.). USP 2 912 720, Nov. 17, 1959. (284)

Means for eliminating the formation of fringes or tufts of lint cotton along the lower edge of the feed plate of a combing cylinder.

Carding and combing B2

ROLLER CARDING MACHINE. W. Leach. BP 816 294, July 8, 1959. Through BCIRA 39: 3840 (1959). (285)

The card fillet wrapped round the clearer roller has spaced groups of teeth that occur on the roller as a helical band from end to end.

COTTON CARDING APPARATUS. E. Clark (to Abington Textile Machy. Works). USP 2 910 736, Nov. 3, 1959. (286)

Timing device which automatically permits stripping of the doffer cylinder by the doffer nozzle for a predetermined time after the nozzle reaches the end of its traverse.

ROLLER CARDING MACHINES. C. O. Müllenschläder (Germany). USP 2 912 721, Nov. 17, 1959. (287)

The worker and stripper rolls are distributed over the outer surface of the main roll in such a way as to make possible their easy removal for maintenance purposes.

SLIVER COILER. R. D. Carmichael (to So. States Equip. Corp.). USP 2 908 945, Oct. 20, 1959. (288)

Coilers using large cans provided with rollers to make it easier to move the cans.

COTTON CARDING APPARATUS. E. Clark (to Abington Textile Machy. Works). USP 2 910 733, 2 910 734, and 2 910 735, Nov. 3, 1959. (289)

Means for automatically piecing newly formed web to old web after stripping.

Drawing and roving B3

COILING OF TOW OR SLIVER. I. Jones and R. S. Turner (to Brit. Nylon Spinners Ltd). BP 816 305, July 8, 1959. Through BCIRA 39: 3822 (1959). (290)

The tow or sliver (e.g. of nylon), traveling at high speed, is deflected into a revolving can by means of an inclined, rockable frame over which is stretched a woven or knitted fabric made of nylon monofil.

ELECTRICAL STOP MOTIONS FOR SLIVER DRAFTING. N. Schlumberger & Cie. BP 817 190, July 29, 1959. Through BCIRA 39: 4052 (1959). (291)

In a stop-motion for machines working weak materials such as slivers (e.g. gill boxes in which the sliver passes in a spiral path around an elongated guide) a pivoted part is arranged to drop away from the guide if the sliver breaks and actuate an electrical stopping device.

DRAFTING APPARATUS APRON-TENSIONING ROLL SUPPORT. W. Macdonald. USP 2 911 685, Nov. 10, 1959. (292)

Press-on bearing element which may be attached to tension roll supporting arms to compensate for different degrees of wear.

ROVING APPARATUS FOR MAKING SHANTUNG YARN. H. B. Jackson and C. L. Jolly (to Neisler Bros., Inc.). USP 2 911 782, Nov. 10, 1959. (293)

Roving frame attachment for varying the draft at controlled intervals to produce slubs of controlled variable length along the length of the yarn.

FINE SPREADER FOR DRAWING, COMBING, AND SPREADING BAST FIBERS FOR MANUFACTURE OF CORDAGE. C. MacKinnon (to Plymouth Cordage Co.). USP 2 913 774, Nov. 24, 1959. (294)

Slow speed screw operated unit combined with high speed chain unit for operating a series of gill bars at a greater speed than a series of faller bars. The two units are closely interconnected so that the fiber delivered by the faller bars is immediately received for drafting by the faster moving gill bars.

TOP DRAFTING ROLL SUPPORT. B. C. Cole and E. P. Waite (to Small Business Admin.). USP 2 914 811, Dec. 1, 1959. (295)

Removable assembly for supporting the ends of the middle line top rolls which may be readily and accurately installed at the ends of the roll spindle without the need for grooved adaptors or internal wire snap rings.

SYNTHETIC RUBBER DRAFTING MACHINERY APRONS. E. L. Howell (to Dayton Rubber Co.). USP 2 912 722, Nov. 17, 1959. (296)

Drafting apron which reduces the accumulation of fibers on parts of the machine in contact with the apron consists of a flexible sleeve with an inner surface provided with a series of small parallel ribs projecting inwardly from the sleeve.

Spinning, winding, twisting B4

WEIGHT DEVIATION CONTROL DURING SPINNING. Zellweger Ltd. BP 816 375, July 15, 1959. Through BCIRA 39: 3841 (1959). (297)

The invention relates to means for overcoming drafting irregularities by automatically making compensating adjustments in the speed of the drafting rollers.

FLYER FOR UPTWISTERS. F. Ridgway (to Arundel, Coulthard & Co. Ltd). BP 817 217, July 29, 1959. Through BCIRA 39: 4053 (1959). (298)

A flyer for use with a double-flanged bobbin on an uptwister comprises a cap carrying a yarn guide and a spindle that projects downwards into the upper end of the bobbin spindle. A plate or disc is interposed between the cap and the bobbin; the plate has a covering of felt on which the cap rests, and its lower face is covered with rubber.

CONTROLLING THE PASSAGE OF ROVINGS TO SPINNING MACHINES. A. P. Grifoll, J. S. Casas, and R. V. Salvans (Spain). BP 817 248, July 29, 1959. Through BCIRA 39: 4054 (1959). (299)

A device for preventing singles when 2 rovings are fed to a spinning machine comprises a pivoted member with 2 guide parts for the rovings. If one roving fails the member loses its balance, and the intact roving is brought against a severing device and thus prevented from passing on alone.

TOP DRAFTING ROLL WEIGHTING. SKF Kugellagerfabriken GmbH. BP 817 317, July 29, 1959. Through BCIRA 39: 4051 (1959). (300)

Clamping member for preventing the bracket, to which is pivoted the carrier arm of a top roll weighting device, from slipping on its supporting bar.

TOP DRAFTING ROLLS FOR SPINNING MACHINES. W. Naegeli (to J. J. Rieter & Cie AG). USP 2 909 811, Oct. 27, 1959. (301)

The top roll sleeve is held in place on the outer race of an antifriction bearing by the radial pressure produced by the elasticity of the top roll covering.

DOUBLE AND COARSE ROVING CATCHER FOR SPINNING FRAMES. A. Rancourt and L. S. Bussiere. USP 2 910 824, Nov. 3, 1959. (302)

Device for catching and breaking roving when it becomes coarser or heavier than normal or for catching a broken roving.

WEAR RESISTANT BOBBIN DRIVE OF SYNTHETIC RESIN. A. P. Rushton (to E. I. du Pont de Nemours & Co.). USP 2 913 868, Nov. 24, 1959. (303)

PNEUMATIC SPINNING APPARATUS FOR CORE YARNS. K. Götzfried (Germany). USP 2 911 783, Nov. 10, 1959. (304)

For producing in a single operation a yarn having a hard core of synthetic fibers and an outer layer of wool or cotton fibers.

DEVICE FOR INCREASING PACKAGE LENGTH IN TWISTING. E. E. Feather (to Prince-Smith & Stells Ltd). USP 2 912 815, Nov. 17, 1959. (305)

Extensible package support which enables any required length package to be wound without in any way affecting the axial length of the balloon.

PLY TWISTING APPARATUS FOR FORMING CORDS. H. A. Schrenk (to Am. Enka Corp.). USP 2 913 867, Nov. 24, 1959. (306)

Apparatus for producing a cord of any desired twist in a single, uninterrupted operation irrespective of the starting twist of the component yarns.

BOBBIN SUPPORT. H. P. Staufert (Germany). USP 2 914 271, Nov. 24, 1959. (307)

Support offering resistance to accidental removal of the bobbin while still permitting easy intentional removal.

APPARATUS FOR PLYING YARNS. N. E. Klein and E. J. Wright (to Deering Milliken Research Corp.). USP 2 914 903, Dec. 1, 1959. (308)

The apparatus includes a ply action spindle and yarn takeup mechanism which are synchronized, as well as a balloon tension control for automatically compensating for fluctuations in balloon tension and configuration and tension control means to maintain an even strand flow.

TWO-FOR-ONE TWISTER. H. M. Brown (to Clemson Coll.). USP 2 914 904, Dec. 1, 1959. (309)

Traverse mechanism consisting of a roller with right and left hand reversing screw type grooves, crossing each other, which directly engage the yarn to traverse it along a core driven by a friction drum.

FALSE TWIST SPINDLE SUPPORT. A. R. Andrews and A. E. Winslow (to Standard Screw Co.). USP 2 914 905, Dec. 1, 1959. (310)

Yarns B5

DUAL TORQUE STRETCH YARN. M. H. Comer, D. W. Terrell, and C. A. Miles (to Patentex, Inc.). USP 2 909 028, Oct. 20, 1959. (311)

Method of producing synthetic filament yarn made up of recurring spaced portions of opposite twist adjacent to each other.

SYNTHETIC SEWING THREAD. N. F. Vandervoort (to Mason Silk Co.). USP 2 911 784, Nov. 10, 1959. (312)

Synthetic thread of increased bulk and roughness to prevent slipping of the thread during sewing is produced by twisting the thread and then treating it to produce projecting loops.

BONDING OF TERYLENE TIRE CORD TO RUBBER. E. Knowles and T. J. Meyrick (to Imp. Chem. Inds. Ltd). BP 816 640, July 15, 1959. Through BCIRA 39: 3855 (1959). (313)

Tire cords of Terylene are first dipped in a solution (in methylene chloride) of 4:4'-di-isocyanatodiphenylmethane or 4:4':4"-tri-isocyanatotriphenylmethane and then in an aqueous dispersion of an adhesive consisting of a butadiene/vinylpyridine latex and a resorcinol/formaldehyde solution.

PLIED YARN. W. B. Choate. USP 2 912 742, Nov. 17, 1959. (314)

Yarn with increased tensile strength, softness, high bulk/weight ratio, and high absorbency is formed by plying or braiding together low twisted strands and stitching the yarn along its length.

MEANS FOR DISPENSING MULTIFILAMENT YARN AS DECORATIVE FLUFFED MATERIAL. A. J. Ammerall. USP 2 913 800, Nov. 24, 1959. (315)

FABRIC PRODUCTION C

BOBBIN HOLDER AND TENSION DEVICE FOR BRAIDING MACHINES. M. Ostermann and W. Klein (to W. & M. Ostermann). USP 2 911 875, Nov. 10, 1959. (316)

Several bobbins are mounted on a single horizontal spindle and friction discs are interposed between adjacent bobbins in such a way as to maintain equality of tension between all the threads as they are withdrawn for braiding.

ADJUSTABLE TENSION REGULATOR FOR YARN. E. Vossen (to Stop-Motion Devices Corp.). USP 2 912 185, Nov. 10, 1959. (317)

Regulator by which the tension may be set in advance of the operation of the machine and automatically maintained during operation.

Warping, slashing, yarn preparation C1

PACKAGE DRIVING ROLLERS FOR YARN WINDING MACHINES. J. H. George (to D. Fraser & Sons Ltd). BP 817 152, July 22, 1959. Through BCIRA 39: 4061 (1959). (318)

To prevent slip between a yarn package and the roller that drives it by frictional contact, the roller (cylindrical or frusto-conical) is formed with flutes that taper from the base end more than halfway along the roller. Alternatively the roller may have a band of knurled surface towards one end.

WARP SIZING AGENTS. M. J. Scott (to Monsanto Chem. Co.). USP 2 909 447, Oct. 20, 1959. (319)

Copolymers of vinyl acetate and an unsaturated organic carboxylic compound, e.g. crotonic acid, are claimed.

TENSION AND DIAMETER CONTROL FOR A WINDING MACHINE. W. Weber and H. Lohest (to Barmer Maschinenfabrik AG). USP 2 915 254, Dec. 1, 1959. (320)

YARN CLEARER. C. B. Crandall (to Barber-Colman Co.). USP 2 909 828, Oct. 27, 1959. (321)

Pinching type clearer in which the movement of the gripper into pinching engagement with the yarn is limited by means of an auxiliary feeler which senses the presence of passing slubs.

BOBBIN HANDLING. R. M. Ingham, Jr., R. Ferguson, and J. L. Brown (to Deering Milliken Research Corp.). USP 2 911 088, Nov. 3, 1959. (322)

Hold down arm and feed chute arrangement with provision for discharging grossly misaligned or misplaced bobbins.

YARN TENSIOMETER. F. Nistico and R. R. Hoffman (to Celanese Corp.). USP 2 911 823, Nov. 10, 1959. (323)

For instantaneously and accurately indicating the tension on yarns during winding, knitting, or weaving.

MULTIPLE-HEAD BOBBIN WINDING MACHINE. H. Grein and W. Zander (to Barmer Maschinenfabrik AG). USP 2 915 253, Dec. 1, 1959. (324)

The gear sets of the bobbins are arranged along the length of the machine in tiered rows, so that the bobbins project at both sides of the machine.

YARN PACKAGE SUPPORT FOR USE IN UNWINDING. F. G. Parrott. USP 2 915 260, Dec. 1, 1959. (325)

The support is made up of telescopically arranged sections, each of which may be removed to receive various size packages.

Weaving C2

WARP LETOFF DEVICE. K. Sakamoto (Japan). BP 816 111, July 8, 1959. Summary in BCIRA 39: 3856 (1959). (326)

LOCATING AND SUPPORTING WARP ACCESSORY MACHINERY ON LOOMS. G. Roberts and E. J. Poole (to Wool Inds. Research Assoc.). BP 816 790, July 22, 1959. Through BCIRA 39: 4063 (1959). (327)

Means for locating and supporting dropper pinning and like warp accessories on a loom comprise a framework that can be clamped to the back rail of the loom above the warp and consist of a pair of parallel rails, spaced apart, one of which incorporates a rack.

LOOM REEDS. F. Wilkinson (to Wool Textile Supplies Ltd). BP 817 495, July 29, 1959. Through BCIRA 39: 4062 (1959). (328)

Latex or similar elastic adhesive is used instead of pitch to impregnate or cover the spun yarn that holds the reed wires in position on the baulks, and a coil spring is inserted on the inner side of each baulk extending across each side of the reed and passing between adjacent wires to maintain these correctly spaced.

LOOM ATTACHMENT. R. G. Jamison. USP 2 912 014, Nov. 10, 1959. (329)

For separating warp yarn sheet after it leaves the loom beam and before it reaches the drop wires.

ADJUSTABLE HOOK FOR FASTENING DOBBY CORD TO HARNESS FRAME. B. Hayden. USP 2 910 095, Oct. 27, 1959. (330)

VARIABLE-DEPTH LOOM. G. Egli (to Ruti Machy. Works Ltd). USP 2 911 012, Nov. 3, 1959. (331)

Loom in which the depth of the harness frame space may be altered at any time without replacing or exchanging any other structural elements.

PHOTOELECTRIC WEFT DETECTING SYSTEM. W. C. Howe (to Crompton & Knowles Corp.). USP 2 911 013, Nov. 3, 1959. (332)

The system described does not require any change in the ordinary weft package in the shuttle but instead uses a reflecting surface placed on the shuttle.

WEAR RESISTANT SELVAGE FOR WOVEN FABRICS. M. A. Law (to Fieldcrest Mills). USP 2 912 015, Nov. 10, 1959. (333)

In a fabric containing weft and warp yarns predominantly of cotton, the selvage is formed by interweaving warp catch yarns of wear resistant material, e.g. nylon, with the warp yarns of the fabric.

LIFTING HEDDLES FOR CROSS OR DOUP WEAVING. J. J. Kaufmann (to Steel Heddle Mfg. Co.). USP 2 913 013, Nov. 17, 1959. (334)

WEAVING OF SEAMLESS, LINED TUBULAR FABRICS FOR SACKS ON CIRCULAR LOOMS. J. Rabeux and R. Jacob (to Soc. d'Applications Gen. d'Electricite & de Mecanique). USP 2 913 799, Nov. 24, 1959. (335)

LOOM LETOFF. G. E. Clentimack (to Draper Corp.). USP 2 914 092, Nov. 24, 1959. (336)

Variable speed control system for beam letoff responsive to changes in effective diameter and yarn tension.

LOOM LETOFF. G. S. Anderson and W. J. Budzyna (to Draper Corp.). USP 2 914 093, Nov. 24, 1959. (337)

Letoff in which a hand wheel may be used to rotate the warp back and forth without interference due to the ratcheting means, gearing, or brake.

LOOM REED HAVING REMOVABLE DENTS. R. B. Hutchins (to Whitaker Reed Co.). USP 2 914 094, Nov. 24, 1959. (338)

MEANS FOR OBTAINING UNIFORMITY OF TUFT LENGTH IN AXMINSTER LOOMS. E. S. Parsons, J. H. Johnson, and A. J. de Gozzaldi (to Shawmut Eng. Co.). USP 2 915 090, Dec. 1, 1959. (339)

Hydraulic spool braking means for tufting yarn spools which is responsive to the diameter of the yarn mass on the spool so that the same length of tufting yarn is withdrawn during each successive weaving-in cycle.

DOUBLE ACTING BUFFER FOR HIGH SPEED OPERATION OF LOOMS WITH A NONMOVING REED. J. Picanol (Belgium). USP 2 915 093, Dec. 1, 1959. (340)

COP BOBBIN AND GRIP HOLDER FOR SHUTTLE. H. T. Simmons. USP 2 914 095, Nov. 24, 1959. (341)

The shuttle is provided with a bobbin cavity, means for retaining the cop grip holder in the shuttle, and an eye located in its front portion for guiding yarn as it is unwound from the outside front of the cop bobbin.

PICKER STICK CHECK. J. M. Budzyna (to Draper Corp.). USP 2 915 092, Dec. 1, 1959. (342)

The picker stick and shuttle are arrested by supplementing the usual endless looped flexible check strap with a second strap of flexible material which surrounds and contacts the outside portion of the check strap.

Knitting C3

FULL-FASHIONED NYLON HOSE WITH NON-BULKY SEAM. J. C. Bolles, R. M. Matthews, and F. E. Bobo, Jr. (to Chadbourn Gotham Inc.). USP Reissue 24 737, Nov. 17, 1959. Original No. 2 806 367, Sept. 17, 1957. (343)

The seam is minimized by knitting in and beyond the nylon selvage on each side of the stocking a panel of a thread which is removed by chemical or other means after seaming.

MEANS FOR CONTROLLING WILDNESS OF STRETCH YARN DURING DELIVERY IN KNITTING. H. M. Strub, Jr. (to Duplan Corp.). USP 2 909 913, Oct. 27, 1959. (344)

Resilient device (knit tube) for surrounding the yarn supply package and placing a slight tension on the yarn to prevent its curling and kinking.

CIRCULAR HOSIERY MACHINE OF THE KOMET TYPE. F. E. Deans and C. H. Wainwright (to Bentley Eng. Co. Ltd). USP 2 910 847, Nov. 3, 1959. (345)

The various parts of the machine are made more accessible by suspending both the top cylinder and top cam box from a single stationary support and eliminating the usual intermediate plate.

METHOD OF KNITTING INTARSIA OR ARGYLE TYPE HOSIERY. N. Levin (to Textile Mach. Works). USP 2 910 848 and 2 910 849, Nov. 3, 1959. (346)

In knitting hosiery with an overplaid design on a 4-feed circular machine by reciprocation, the method of simultaneously knitting portions of all 4 diamond areas or of only a pair of the diamond areas, as desired, is described.

YARN LETOFF MECHANISM FOR HIGH SPEED WARP KNITTING MACHINES. J. Held and F. P. Trumpio (to Textile Mach. Works). USP 2 910 850, Nov. 3, 1959. (347)

Means for controlling the rotation of yarn beams to let off yarns at constant linear speeds as they are withdrawn from the beams and formed into loops.

TRANSFER POINT STRUCTURE FOR SELVAGE FORMATION ON FULL-FASHIONED KNITTING MACHINES. R. P. Loeper and H. E. Zondlo (to Textile Mach. Works). USP 2 910 851, Nov. 3, 1959. (348)

MOCK CABLE ORNAMENTATION ON HOSIERY. C. N. Herbert and T. W. Herbert. USP 2 910 852, Nov. 3, 1959. (349)

Spaced wrap yarn plated panels of adjoining wales are secured together at spaced points to form mock cables.

ELASTIC FABRIC FOR USE AS A SELF-SUPPORTING WELT FOR STOCKINGS. R. C. Howard (to Narrow Fabric Co.). USP 2 910 853, Nov. 3, 1959. (350)

CREPE EFFECT WARP KNIT FABRICS. F. C. Brown (to Brit. Celanese Ltd). USP 2 911 704, Nov. 10, 1959. (351)

The fabric is knit under tension from a composite yarn containing filaments of differing elasticity wound under moderate tension to effect recoverable and permanent extension of the respective filaments.

WRAP YARN FEED FOR CIRCULAR KNITTING MACHINE. V. Lombardi. USP 2 911 807, Nov. 10, 1959. (352)

Means for imparting a reverse knitting wave to elements engaged in the knitting operations on the return course from a wrap yarn feed.

STITCH LENGTH GRADUATING ATTACHMENT FOR CIRCULAR HOSIERY MACHINES. H. M. Routh and H. E. Crawford. USP 2 911 808, Nov. 10, 1959. (353)

HOSIERY MACHINE. R. H. Lawson and P. W. Bristow (to Scott & Williams, Inc.). USP 2 912 839, Nov. 17, 1959. (354)

Butt arrangement for needle control during formation of heel and toe pockets which prevents stretching of stitches carried by inactive needles.

YARN CARRIER DRIVE MECHANISM FOR FLAT KNITTING MACHINES. A. J. Cobert (to Beautiful Bryans, Inc.). USP 2 912 840, Nov. 17, 1959. (355)

TEXTILE LUBRICANT FOR NYLON KNITTING. K. F. Schiermeier (to Shell Develop. Co.). USP 2 913 407, Nov. 17, 1959. (356)

METHOD OF OBTAINING NYLON HOSIERY WITH DARK COLORED HEEL IN SINGLE DYEING OPERATION. J. C. F. Kessler and B. Kamerbeek (to Am. Enka Corp.). USP 2 913 801, Nov. 24, 1959. (357)

The heel is knitted of nylon containing carbon black and the rest of the stocking of nylon without carbon black.

CIRCULAR HOSIERY MACHINE STITCH CONTROL MECHANISM FOR KNITTING ELASTIC FABRIC. R. B. Kale and N. J. Lemons (to Kale Knitting Mills). USP 2 913 886, Nov. 24, 1959. (358)

WELT CONSTRUCTION FOR FLAT KNIT HOSIERY. W. Güter (to Opal Strumpfwerke GmbH). USP 2 913 891, Nov. 24, 1959. (359)

In a double-walled welt, the first two courses of loops of the first welt portion joining the leg consists of curled crepe nylon yarn to give a smooth and even joint and facilitate welt turning by the rake or comb of the machine.

TRICK WHEEL CIRCULAR KNITTING MACHINE. V. Ducharme (to Gelmart Knitting Mills). USP 2 913 887, Nov. 24, 1959. (360)

Cam mechanism enabling the machine to knit, tuck, and/or float yarns.

WARP KNITTING MACHINE NEEDLE CONSTRUCTION. R. C. Amidon. USP 2 913 888, Nov. 24, 1959. (361)

Hook needle and associated slide plate are arranged so that the yarn is more accurately moved into the hook of the needle making possible higher machine speeds and fewer imperfections.

MESH STRIPPER FOR HAND OPERATED KNITTING MACHINES. E. Piltz (Germany). USP 2 913 889, Nov. 24, 1959. (362)

YARN CHANGE END ATTACHMENT FOR CIRCULAR HOSIERY MACHINES. F. R. Page (to Scott & Williams Inc.). USP 2 913 890, Nov. 24, 1959. (363)

Means for pulling yarn change ends away from the needles by air suction applied around the needle circle.

HOSIERY BOARDING FORM. R. W. Russell (to Siler City Mfg. Co.). USP 2 914 226, Nov. 24, 1959. (364)

APPARATUS FOR ADJUSTING NEEDLES ON MANUALLY OPERATED KNITTING APPARATUS. E. Schumm (Germany). USP 2 914 933, Dec. 1, 1959. (365)

KNITTING MACHINE DIAL NEEDLE. T. J. Thore (to Fidelity Mach. Co.). USP 2 914 934, Dec. 1, 1959. (366)

Dial needle with provision for transfer of a loop of yarn to a second needle.

Fabrics C4

NONWOVEN FABRICS. E. Elöd (Germany). BP 816 983, July 22, 1959. Through BCIRA 39: 4065 (1959). (367)

Nonwoven fabrics for use as stiffening and interlining materials are made by impregnating a conventional nonwoven material with a dispersion or emulsion containing a natural or synthetic rubber and a formaldehyde condensate (phenol, urea, or melamine) capable of reacting with reactive groups (e.g. ethylenic groups) in the rubber molecule during a heat cure so as to establish cross-links.

WINDING MACHINE FOR FIBER REINFORCED TUBULAR LAMINATES. S. P. Prosen and H. B. McLelland, Jr. (to U. S. Secy. Navy). USP 2 910 251, Oct. 27, 1959. (368)

SYNTHETIC FIBER FELT-LIKE PRODUCTS. H. G. Lauterbach (to E. I. du Pont de Nemours & Co.). USP 2 910 763, Nov. 3, 1959. (369)

Felt-like material which eliminates the need for mechanical working necessary in felting wool fibers is prepared from heat-retractable synthetic staple fibers.

ARTIST'S CANVAS. E. V. Sundt. USP 2 911 747, Nov. 10, 1959. (370)

In a canvas consisting of a woven glass fabric base with a stretchable and pliable light-transmitting polyethylene backing and a front layer of paint primer, the glass fiber strands in one direction of the weave have short staple fibers projecting laterally along the strand to give a ragged or grain surface to the canvas.

INDICATOR TAPE FOR DETECTING LEAKAGE IN HIGH TEMPERATURE VESSELS, PIPING, OR THE LIKE. L. J. Rasero (to Russell Mfg. Co.). USP 2 912 016, Nov. 10, 1959. (371)

Electrical conductors are woven into a flat tape formed from yarn composed of a blend of ceramic fibers and a filler such as glass, cotton, Dacron, or nylon which is carbonizable at high temperatures.

HIGH AND LOW PATTERN ATTACHMENT FOR TUFTED CARPETS. H. F. Nowicki (to James Lees & Sons Co.). USP 2 912 945, Nov. 17, 1959. (372)

A contoured roller is oscillated back and forth across the tufting machine to control selected yarn ends in such a way that varying pile heights are obtained.

NEEDLE TUFTED PILE FACED CARPETING. F. D. Dodds (to Artloom Carpet Co.). USP 2 913 803, Nov. 24, 1959. (373)

The pile loops are anchored in a foundation layer of plastic coated felted fibers by a latex backing.

NONWOVEN COHERENT BATTING OF CELLULOSE ESTER STAPLE FIBERS. R. H. Pratt and R. H. Bailey (to Celanese Corp.). USP 2 914 422, Nov. 24, 1959. (374)

The staple fibers are caused to coalesce at their points of contact by spraying the uncompressed batting with a volatile solvent for the fibers while simultaneously applying suction to draw the solvent and solvent vapors through the body of the batting.

SYNTHETIC FIBER PILE FABRICS. R. H. Montgomery (to Dow Corning Corp.). USP 2 914 836, Dec. 1, 1959. (375)

The fabric is prepared by treating a tricot knit fabric with a methylsilicone, napping the fabric, passing it near an electrostatic bar to cause the napped fibers to stand out, and again napping the fabric to develop the desired pile.

PILE CARPET UNCUT FLOATS OVER CUTTING WIRE. J. H. Harding (to C. H. Masland & Sons). USP 2 915 091, Dec. 1, 1959. (376)

Construction which permits the carrying of high floats over the cutters on wires without being cut while cutting the normal pile.

CONTOURED AUTOMOTIVE FLOOR MAT. J. E. Schriner and C. R. Masters (to Eagle-Picher Co.). USP 2 915 427, Dec. 1, 1959. (377)

Sized, stretchable pile carpet fabric is placed on a mold of desired contour, wetted, stretched to shape, dried, and bonded to a rubber backing of similar shape.

FINISHING D

HOSIERY FINISHING APPARATUS. H. E. Brewin and G. H. Brewin (to Dyotherm Corp.). USP 2 915 230, Dec. 1, 1959. (378)

Apparatus for preboarding, scouring, dyeing, finishing, and drying hosiery in a single step.

Chemical processes D1

DERIVATIVES OF FORMALDEHYDE CONDENSATION COMPOUNDS OF MELAMINE AS ANTISTATIC DRESSINGS. Ciba Ltd. BP 816 044, July 8, 1959. Summary in BCIRA 3904 (1959). (379)

EPOXY METHYLOL PHOSPHORUS DERIVATIVES AS FLAMEPROOFING AGENTS. Albright & Wilson Ltd. BP 816 069, July 8, 1959. Summary in BCIRA 39: 3909 (1959). (380)

STIFFENED COLLARS AND CUFFS. R. J. Mann and J. D. Ratcliffe (to Brit. Celanese Ltd). BP 816 238, July 8, 1959. (381)

As interlining fabric, use is made of a cellulose triacetate fabric impregnated with a heat-hardenable resin precondensate, e.g. a melamine/formaldehyde condensate.

RESIN TREATMENT OF TEXTILES. E. Elöd (Germany). BP 816 330, July 8, 1959. Through BCIRA 39: 3905 (1959). (382)

The claims are for a resin treatment whereby low-grade and open weave fabrics, especially muslins, can be used as lining materials. The fabrics are impregnated with emulsions of rubber (natural or synthetic) and amine/formaldehyde condensates capable of cross-linking with reactive groups in the rubber molecules. The emulsions are applied as foams and set by heat.

MACHINE FOR YARN WET PROCESSING. G. S. Helliwell (to Samuel Pegg & Son Ltd). BP 816 467, July 15, 1959. Through BCIRA 39: 3899 (1959). (383)

The invention relates particularly to a machine for processing hanks. The hank cage has a partition and the liquid is impelled around the partition and through the hanks. A container for the liquid is placed at a higher position and connected to the casing that surrounds the cage through a stand pipe.

STIFFENING OF TEXTILE FABRICS. E. Elöd. BP 816 506, July 15, 1959. Through BCIRA 39: 3906 (1959). (384)

Open weave fabrics of the gauze and muslin types are impregnated with dispersions of thermosetting ethers of aminoplasts or oil-modified alkyd resins, containing a hardening catalyst, and cured by heat.

WATERPROOFING VISCOSE RAYON. F. Reeder and R. S. Mahomed (to Courtaulds Ltd). BP 817 294, July 29, 1959. Through BCIRA 39: 4083 (1959). (385)

Viscose rayon characterized by reduced water imbibition is obtained by reacting the rayon with a compound containing at least two 2:3-epoxypropyl groups, e.g. tris-(2:3-epoxypropyl)amine.

WATER REPELLENT COMPOSITIONS. L. Williams and R. Sidlow (to Peter Spence & Sons Ltd). BP 817 298, July 29, 1959. Through BCIRA 39: 4086 (1959). (386)

A composition for application in drycleaning solvents comprises paraffin wax and iso-octyl titanate.

CHLORITE BLEACHING OF COTTON. H. P. Gelderman & Zonen NV. BP 817 339, July 29, 1959. Through BCIRA 39: 4080 (1959). (387)

The material (especially cotton) is impregnated with sodium chlorite and treated in a closed space in an atmosphere of steam, the chlorine dioxide formed during the reaction being fixed by injecting a volatile reducing agent, e.g. hydrogen sulfide or formaldehyde.

PREVENTING THE ACCUMULATION OF ELECTROSTATIC CHARGES ON POLYAMIDE OR POLYETHYLENE TEREPHTHALATE FIBERS. J. W. Batty, A. E. Henshall, and H. Sagar (to Imp. Chem. Inds. Ltd). BP 817 355, July 29, 1959. Through BCIRA 39: 4085 (1959). (388)

The tendency of materials of the nylon and Terylene type, especially fabrics, to accumulate charges of static electricity is reduced by applying (e.g. by mangling) a liquid condensation product of 1-3 mols. of a fatty acid (lauric, stearic, oleic) and 1 mol. of glycerol previously condensed with 3-40 mols. of ethylene oxide.

HIGH SPEED METAL COATING OF GLASS FIBERS. J. B. Eisen, J. S. Nachtman, J. Bjorksten, and L. A. Roe (to Bjorksten Research Labs.). USP 2 907 626, Oct. 6, 1959. (389)

CORROSION RESISTANT APPARATUS FOR ACID CHLORITE BLEACHING SOLUTIONS. J. Rasch (to Deutsche Gold- und Silber-Scheideanstalt). USP 2 910 342, Oct. 27, 1959. (390)

Apparatus made of aluminum coated with aluminum oxide is resistant to corrosion by acid chlorite solutions free of nitrate and phosphate ions.

METHOD FOR PRODUCING RESIN COATED GLASS FIBER FILAMENTS. W. H. Miller and M. R. Alexander (to Owens-Corning Fiberglas Corp.). USP 2 910 383, Oct. 27, 1959. (391)

APPARATUS FOR PRODUCING PATTERNED FOAM RUBBER COATED FABRICS. E. J. Grajeck (to Collins & Aikman Corp.). USP 2 910 724, Nov. 3, 1959. (392)

WATERPROOFING COMPOSITION. J. G. Evans, G. Landells, and W. S. Meals (to Bradford Dyers' Assoc. Ltd). USP 2 911 324, Nov. 3, 1959. (393)

A mixture of a methylpolysiloxane and a titanium compound is claimed.

FLAMEPROOFING AGENT. G. L. Drake, Jr., W. A. Reeves, and L. H. Chance (to U.S. Secy. Agri.). USP 2 911 325, Nov. 3, 1959. (394)

Polymers produced by the reaction of a 1-aziridinyl phosphine oxide or sulfide with a methylol phosphorus compound are claimed.